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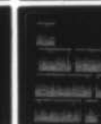
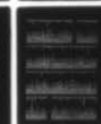
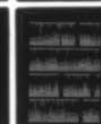
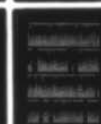
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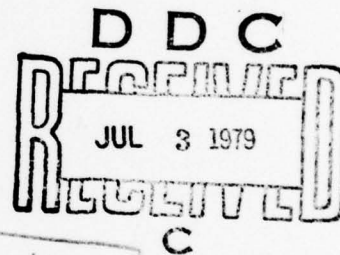
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20. ABSTRACT This is the Soviet Laser Bibliography for July-August 1977 and is No. 30 in a continuing series on Soviet laser developments. The coverage includes basic research on solid state, liquid, gas, and chemical lasers; components; nonlinear optics; spectroscopy of laser materials; ultrashort pulse generation; theoretical aspects of advanced lasers; and general laser theory. Laser applications are listed under biological effects; communications; beam propagation; computer technology; holography; laser-induced chemical reactions; measurement of laser parameters; laser measurement applications; laser-excited optical effects; beam-target interaction; and plasma generation and diagnostics.		

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Introduction

This bibliography has been compiled under an interagency agreement as a continuing effort to document current Soviet-bloc developments in the quantum electronics field. The period covered is July-August 1977, and includes all significant laser-related articles received by us in that interval. The bulk of the entries come from the approximately 30 periodicals which are known to publish the most significant findings in Soviet laser technology. Citations from the Russian Reference Journals are included, as well as entries from the CIRC data base not otherwise covered. Laser items from the popular or semipopular press are generally omitted.

For convenience we have abbreviated frequently cited source names; a source abbreviations list and an author index are included. All sources cited with no parenthetical notation are available at the Library of Congress. A parenthetical entry (RZh, KL), indicates the secondary source in which the citation was found as a bibliographic entry or abstract, but for which the original source is not currently available at the Library. The authors' affiliations are indicated by the numbers in parentheses following the authors' names in the text and are listed in the Author Affiliations List. New affiliations are assigned a new number and are added to a cumulative list which includes all affiliations from 1969 to the present. Only those affiliations which appear in this issue are listed in this issue's Author Affiliations List.

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I. BASIC RESEARCH

A. SOLID STATE LASERS

1. Crystal: Ruby

1. Dranov, L.N., D.A. Kichigin, V.S. Konevskiy, L.A. Litvinov, and E.A. Chernina (84). Method for monitoring crystals based on electron paramagnetic resonance. Zavodskaya laboratoriya, no. 8, 1977, 952-953.
2. Kasperczuk, A., M. Paduch, L. Pokora, and Z. Wereszczynski (NS). Ruby laser with a special resonator generating nanosecond pulses, with the possibility of shaping their front. BWAT, no. 2, 1977, 159-164. (RZhRadiot, 8/77, 8Yel17)
3. Kovalev, A.A., L.V. Levashkevich, V.A. Pilipovich, Yu.V. Razvin, and B.N. Tyushkevich (0). Generating a train of nanosecond pulses in an electrooptically switched ruby laser. ZhTF P, no. 14, 1977, 665-668.
4. Leontovich, A.M., and A.M. Mozharovskiy (1). Stimulated emission in ruby at low temperatures. IN: Tr 1, 3-40.

2. Crystal: Rare-Earth Activated

5. Bogomolova, G.A., L.A. Bumagina, A.A. Kaminskiy, and B.Z. Malkin (13). Crystal field in laser garnets with TR^{3+} ions in a model of exchange charges. FTT, no. 8, 1977, 1439-1452.
6. Dmitriyev, V.F., and V.K. Novokreshchenov (0). Phase-amplitude characteristics of a $YAG:Nd^{3+}$ laser with intra-resonator second harmonic generation. KE, no. 7, 1977, 1582-1587.

7. Kaminskiy, A.A., A.A. Pavlyuk, T.I. Butayeva, V.A. Fedorov, I.F. Valashov, V.A. Berenberg, and V.V. Lyubchenko (13,77). Study of stimulated emission at additional transitions of Ho^{3+} and Er^{3+} ions in $\text{KGd}(\text{WO}_4)_2$ crystals. NM, no. 8, 1977, 1541-1542.
8. Kravtsov, N.V., V.A. Sidorov, and A.M. Susov (2). Axial mode-locking in a solid-state laser with a nonstationary resonator. ZhTF P, no. 13, 1977, 611-614.
9. Voron'ko, Yu.K., and A.A. Sobol' (1). Spectroscopy of activator centers of rare-earth ions in laser crystals with a garnet structure. IN: Tr 1, 41-77.

3. Crystal: Miscellaneous

10. Khizhnyakov, V., and I. Rebane (61). Theory of transition spectra of resonant secondary emission of impurity centers in crystals. IAN Est, no. 3, 1977, 260-280.

4. Semiconductor: Simple Junction

a. GaAs

11. Basov, N.G., V.S. Kargapol'tsev, Ye.P. Malygin, V.K. Malyshev, V.I. Molochev, K.N. Narzullayev, V.V. Nikitin, A.S. Semenov, and O.N. Talenskiy (1). Single-frequency semiconductor GaAs injection laser. KE, no. 8, 1977, 1815-1816.
12. Litvinov, V.F., V.V. Nikitin, A.S. Semenov, A.B. Sergeyev, and V.F. Trukhin (0). Study of a mode-locking regime in a semiconductor laser with an external mirror. IN: Sb 1, 140-144. (RZhRadiot, 8/77, 8Ye150)

13. Logginov, A.S., and V.Ye. Solov'yev (2). Interaction and spectral distribution of transverse modes in GaAs strip lasers. VMU, no. 4, 1977, 32-37.

14. Yelisseyev, P.G., V.N. Lavrov, and Ye.G. Sukhov (0). Lasing characteristics in injection lasers under short pumping pulses. RiE, no. 8, 1977, 1645-1652.

b. CdS

15. Kritskiy, A.V., N.N. Krupa, and G.A. Kupchenko (5). Lasing in CdS single crystals under single-photon excitation. UFZh, no. 7, 1977, 1194-1198.

5. Semiconductor: Mixed Junction

16. Bovina, L.A., N.B. Brandt, A.A. Druzhinin, R.V. Lutsiv, Ya.G. Ponomarev, and V.I. Stafeyev (114,2). Electric properties of inhomogeneous p-n junctions in $\text{Cd}_{1-x}\text{Hg}_x\text{Te}$ at high hydrostatic pressures. UFZh, no. 7, 1977, 1211-1215.

6. Semiconductor: Miscellaneous

17. Alferov, Zh.I., V.M. Andreyev, N.V. Klepikova, V.I. Kolyshkin, V.R. Larionov, Ye.L. Portnoy, and G.N. Shelovanova (4). Semiconductor heterojunction laser. Otkr izobr, no. 31, 1977, 521806.

18. Bogatov, A.P., P.G. Yelisseyev, I.M. Tsidulko, and I. Ismailov (215). Temperature dependence of the lasing threshold in an injection laser with an external resonator at a fixed wavelength. FTP, no. 7, 1977, 1392-1394.

19. Ismailov, I., N. Shokhudzhayev, D. Akhmedov, and P.G. Yelisseyev (215,1). The characteristics of $n\text{GaP}_{x-1-x}\text{As}_{1-y}\text{P}_y\text{As}_{1-x}$ heterolasers in the visible region. KE, no. 8, 1977, 1821-1823.
20. Kiyak, S.G. (303). A heterojunction based on CdSb. UFZh, no. 7, 1977, 1220-1222.
21. Nakwaski, W., and Z. Muszynski (NS). Technology and spectral characteristics of the first Polish heterojunction lasers. Archiwum elektrotechniki, v. 25, no. 2, 1976(1977), 481-487. (RZhRadiot, 8/77, 8Yel44)
22. Nakwaski, W. (NS). Analysis of temperature rise in single-heterostructure $\text{GaAs-Ga}_{1-x}\text{Al}_x\text{As}$ laser diodes under transient-state conditions. Electron Technology [Poland], no. 3-4, 1976, 131-161. (RZhRadiot, 8/77, 8Yel43)

7. Semiconductor: Theory

23. Suslikov, L.M., I.V. Bodnar', and V.Yu. Slivka (136). Reflection spectra of $\text{CuGa}(\text{S}_x\text{Se}_{1-x})_2$ single crystals. FTP, no. 8, 1977, 1645-1646.

8. Glass: Nd

24. Borisov, B.M., L.A. Vasil'yev, S.V. Datsykov, N.P. Karnaukh, V.P. Kirsanov, Yu.I. Kruzhilin, V.N. Lagun, V.K. Orlov, S.V. Troshkin, and V.I. Filippov (0). Disk neodymium glass amplifier. KE, no. 8, 1977, 1810-1811.

25. Guba, B.S., G.V. Obraztsov, D.S. Prilezhayev, and B.M. Sedov (0).
Designing laser amplifiers based on generalized experimental data.
ZhTF, no. 8, 1977, 1750-1755.
26. Rudnitskiy, Yu.P., R.V. Smirnov, V.I. Sokolov, A.V. Tumanov, and N.S. Shkvarina (0). Amplification of high-power laser pulses in neodymium glass. IN: Sb 2, 68-69. (RZhRadiot, 7/77, 7Ye142)
27. Zavadvorov, N.P., A.A. Mak, V.I. Kryzhanovskiy, I.N. Sventitskaya, V.A. Serebryakov, V.R. Startsev, Yu.A. Flegontov, and A.A. Chertkov (0).
Nd:glass laser with a controlled pulse shape. IN: Sb 2, 57-58.
(RZhRadiot, 7/77, 7Ye141)

9. Glass: Yb-Er

28. Gapontsev, V.P., A.A. Izyneyev, V.B. Kravchenko, and Yu.P. Rudnitskiy (0).
1.06-1.54 μ laser converters using ytterbium-erbium glass. IN: Sb 2,
9-10. (RZhRadiot, 7/77, 7Ye143)

B. LIQUID LASERS

1. Organic Dyes

a. Rhodamine

29. Atroshchenko, V.I., V.S. Ivanov, V.I. Infimovskiy, B.V. Kalachev, B.A. Konstantinov, V.S. Prokudin, I.V. Smirnov, V.A. Tatarskiy, B.F. Trinchuk, and A.A. Churin (0). Flashlamp-pumped rhodamine 6G laser. ZhPS, v. 27, no. 2, 1977, 226-230.

b. Polymethine

30. Melishchuk, M.V., and Ye.A. Tikhonov (5). Stimulated emission at phononless electron-vibrational transitions in polymethine dye solutions. UFZh, no. 8, 1977, 1392-1395.

c. Coumarin

31. Mostovnikov, V.A., A.N. Rubinov, S.S. Anufrik, G.R. Ginevich, V.M. Nikitchenko, and G.S. Vodotyka (0). Effect of the molecular structure of coumarin derivatives on the spectral-luminescence and lasing properties of their solutions. ZhPS, v. 27, no. 1, 1977. 59-65.

d. Miscellaneous Dyes

32. Korobov, A.M., V.V. Pozhar, and M.I. Dzyubenko (84). Study of the spectral formation in organic compound lasers pumped by flashlamps. Institut radiofiziki i elektroniki AN UkrSSR. Preprint, no. 79, Khar'kov, 1977, 36 p. (RZhF, 8/77, 8D1239)
33. Pikulik, L.G., and O.I. Yaroshenko (0). Kinetics of lasing in complex organic compound solutions during laser pumping by linearly polarized radiation. ZhPS, v. 27, no. 1, 1977, 53-58.
34. Pikulik, L.G., and O.I. Yaroshenko (0). Polarization patterns for lasers using complex organic compound solutions. ZhPS, v. 27, no. 2, 1977, 231-237.

C. GAS LASERS

1. Simple Mixtures

a. He-Ne

35. Dabrowski, M., K. Maksjan, and W. Trojanowski (NS). He-Ne laser with enhanced power stability. BWAT, no. 2, 1977, 153-158. (RZhRadiot, 8/77, 8Ye64)
36. Lis, L. (NS). Laser transitions at 3071, 5665, and 10353 nm in an He-Ne electric discharge. Acta physica polonica, v. A51, no. 4, 1977, 609-615. (RZhRadiot, 8/77, 8Ye70)
37. Mogil'nitskiy, B.S., and Yu.D. Kolomnikov (129). Contrast power resonances in a He-Ne¹²⁷ I₂ laser with a large effective absorption length. KE, no. 7, 1977, 1433-1440.
38. Muller, Ya.N., V.M. Geller, L.I. Lisitsyna, and G.I. Grif (327). UHF-pumped He-Ne laser. KE, no. 8, 1977, 1788.
39. Popov, A.I., Ye.D. Protsenko, and Yu.F. Skachkov (0). Dielectric coating for mirrors of dual-wave lasers, lasing at 0.63 and 3.39 μ . ZhPS, v. 27, no. 1, 1977, 37-41.
40. Tuchin, V.V., and G.S. Knyazevskaya (0). Problem of modulation spectroscopy of levels in a He-Ne laser. OIS, v. 43, no. 2, 1977, 297-305.

b. Ca-H₂

41. Klimkin, V.M., and P.D. Kolbycheva (78). Tunable single-frequency calcium-hydrogen laser at 5.54 μ . KE, no. 8, 1977, 1818-1821.

2. Molecular Beam and Ion

a. CO₂

42. Anan'yev, Yu.A., V.I. Kuprenyuk, V.V. Sergeyev, and V.Ye. Sherstobitov (0). Study of the properties of an unstable resonator with a dihedral corner reflector in a flow-through c-w CO₂ laser. KE, no. 7, 1977, 1456-1460.
43. Avanesyan, V.S., A.I. Dutov, Yu.V. Lakhno, and L.N. Malakhov (0). Electroionization laser with a grid-controlled electron gun. KE, no. 8, 1977, 1827-1829.
44. Basov, N.G., V.A. Boyko, V.A. Danilychev, V.D. Avorykin, A.N. Lobanov, A.F. Suchkov, I.V. Kholin, and A.Yu. Chugunov (1). Dynamics of the emission from an electroionization CO₂ laser with a plasma mirror. KE, no. 8, 1977, 1761-1770.
45. Blinov, N.A., I.A. Leont'yev, V.K. Orlov, and N.V. Cheburkin (0). Electroionization closed-cycle CO₂ laser operating in a pulse repetition regime. KE, no. 8, 1977, 1808-1809.
46. Byszewski, W.W., and E. Makowska (NS). Numerical optimization of a high-pressure CO₂-N₂ laser. Acta physica polonica, v. A50, no. 6, 1976, 831-845. (RZhF, 8/77, 8D1248)

47. Grigor'yants, V.V., B.A. Kuzyakov, and A.M. Sinitsyn (326).
Waveguide CO₂ laser gain. KE, no. 7, 1977, 1482-1487.
48. Ivanchenko, A.I., and A.A. Shepelenko (0). Effect of the renewal rate of the gas on the characteristics of a CO₂ laser. IN: Sb 3, 27-28.
(RZhMekh, 7/77, 7B375)
49. Ivanchenko, A.I., and A.A. Shepelenko (0). Electrical fields in a discharge in CO₂-N₂-He transverse to the gas flow. IN: Sb 3, 196-198. (RZhF, 8/77, 8G376)
50. Karlov, N.V., Yu.B. Konev, I.V. Kochetov, and V.G. Pevgov (0).
Generation of nanosecond pulses in high-pressure CO₂ lasers.
ZhTF P, no. 4, 1977, 170-174. (RZhRadiot, 7/77, 7Ye14)
51. Kulish, N.R., N.A. Kazakova, and A.F. Mazinichenko (6). Stabilization of high-power CO₂ lasers. IN: Sb 4, 68-72.
52. Kuntsevich, B.F., B.I. Stepanov, S.A. Trushin, and V.V. Churakov (3).
Lasing in the 16 μ region during optical excitation of the CO₂ molecule by HF laser radiation. ZhTF P, no. 15, 1977, 759-762.
53. Pinchukov, V.I. (0). Calculating a two-dimensional current of a relaxing mixture of CO₂-N₂-H₂O-He gases. IN: Sb 3, 8-10.
(RZhMekh, 8/77, 8B289)
- b. CO
54. Dolinina, V.I. A.F. Suchkov, and B.M. Urin (1). Theoretical investigation of the possibility of generating short high-powered pulses using an electroionizing CO laser. KE, no. 7, 1977, 1571-1572.

55. Konev, Yu.B., I.V. Kochetov, and V.G. Pevgov (118). Effect of the selections of lasing lines on the radiation power of a CO laser. ZhTF P, no. 15, 1977, 733-736.
56. Napartovich, A.P., I.V. Novobrantsev, and A.N. Starostin (0). Theory of a steady-state CO laser. ZhPMTF, no. 4, 1977, 21-24.
- c. Kr
57. Batishche, S.A., V.S. Burakov, V.I. Gladushchak, V.A. Mostovnikov, P.A. Naumenkov, G.T. Rasdobarin, A.S. Rubanov, A.N. Rubinov, V.V. Semenov, L.V. Tanin, and Ye.Ya. Shreyder (4). Lasing in krypton near the 123.6 nm resonance line. ZhTF P, no. 14, 1977, 674-677.
- d. H₂
58. Lozovskiy, P.M., S.P. Chernov, and P.B. Essel'bakh (2). High-power hydrogen laser in the VUV region with a high frequency pulse repetition rate. KE, no. 7, 1977, 1606-1608.
- e. N₂O
59. Volchenok, V.I., N.P. Yegorov, V.N. Komarov, S.Ye. Kupriyanov, V.N. Ochkin, and N.N. Sobolev (92,1). Dissociation of N₂O in the gas-discharge plasma of an N₂O laser. KhVE, no. 4, 1977, 361-365.
- f. NH₃
60. Vasil'yev, B.I., A.Z. Grasyuk, and A.P. Dyad'kin (1). High-power pulsed NH₃ laser optically pumped by a CO₂ laser. KE, no. 8, 1977, 1805-1807.

g. Submillimeter

61. Dyubko, S.F., L.D. Fesenko, and O.I. Baskakov (34). Study of submillimeter wave gain in optically pumped molecular gas media. KE, no. 7, 1977, 1522-1528.

h. Metal Vapor

62. Batenin, V.M., V.A. Burmakin, P.A. Vokhmin, A.I. Yevtyunin, I.I. Klimovskiy, M.A. Lesnoy, and L.A. Selezneva (74). Time dependence of an electron concentration in a copper vapor laser. KE, no. 7, 1977, 1572-1575.
63. Bokhan, P.A., V.I. Solomonov, and V.B. Shcheglov (78). Study of the energy characteristics of an axial discharge copper vapor laser. KE, no. 8, 1977, 1812-1814.
64. Denisov, Yu.V., and N.F. Perevozchikov (118). CuI vapor laser for spectroscopy. IN: Tr 2, 142-146. (RZhF, 8/77, 8D1280)
65. Isayev, A.A., and G.Yu. Lemmerman (1). Study of a pulsed copper vapor laser at elevated powers. KE, no. 7, 1977, 1413-1417.
66. Kozlov, G.I., and S.A. Reshetnyak (17). Calculating the parameters of a lithium vapor plasma-dynamic laser. ZhTF, no. 7, 1977, 1516-1522.
67. Oleynik, Yu.M., and A.V. Rogozhin (0). Relaxation processes in a copper halogenide laser discharge. KE, no. 7, 1977, 1575-1577.

1. Gasdynamic

68. Aleksandrov, B.S., Yu.A. Anan'yev, A.V. Lavrov, and V.P. Trusov (0).
Active medium model for calculating resonators of gasdynamic CO₂ lasers.
KE, no. 7, 1977, 1461-1466.
69. Andronov, G.A., A.G. Armer, V.A. Belavin, B.M. Dymshits, Ya.P.
Koretskiy, and V.F. Sharkov (0). Gasdynamic laser using a CO-Ar
mixture. KE, no. 8, 1977, 1799-1801.
70. Biberman, L.M., V.S. Vorob'yev, B.M. Smirnov, and A.Ye. Sheyndlin (74).
Method for obtaining laser emission. Otkr izobr, no. 27, 1977, 547167.
71. Golovichev, V.I., and M.D. Taran (0). Possible alternatives for
describing the lasing regime in c-w laser systems. IN: Sb 3, 4-7.
(RZhMekh, 7/77, 7B373)
72. Gvozdeva, L.G., and Yu.V. Zhilin (0). Experimental study of gasdynamic
processes during shock startup in supersonic jet nozzles. ZhPMTF,
no. 4, 1977, 66-74.
73. Orayevskiy, A.N., V.P. Pimenov, N.B. Rodionov, and V.A. Shcheglov (1).
Gasdynamic laser using a D₂-HCl-He mixture. KE, no. 8, 1977, 1686-1693.
74. Sharkov, V.F., B.M. Dymshits, G.M. Grigor'yan, G.V. Ivanov, Ya.P.
Koretskiy, I.V. Kochetov, V.M. Lamonov, and V.G. Pevgov (0).
Gasdynamic CO laser with a high energy density. KE, no. 8, 1977,
1824-1826.

75. Vasil'yev, V.M., S.V. Kulikov, and O.V. Skrebkov (0). Calculating a chemically and vibrationally nonequilibrium flow of a multicomponent gas through a jet nozzle. ZhPMTF, no. 4, 1977, 13-21.

j. Miscellaneous Molecular

76. Danilychev, V.A., O.M. Kerimov, and I.B. Kovsh (0). High-pressure molecular gas lasers. IN: Sb 5, 5-253. (RZhRadiot, 8/77, 8Ye77)

3. Excimer

77. Basov, N.G., V.A. Danilychev, V.A. Dolgikh, O.M. Kerimov, V.S. Lebedev, and A.G. Molchanov (1). New excimer bands of radiation in noble gas halides. ZhETF P, v. 26, no. 1, 1977, 20-23.
78. Ishchenko, V.N., V.N. Lisitsyn, and A.M. Razhev (295). Pulsed regime of a KrF excimer laser. ZhTF P, no. 14, 1977, 690-693.
79. Voytik, M.G., A.G. Molchanov, and Yu.M. Popov (1). The kinetics of emitting excimer radiation from inert gases in a sustained electrical discharge. KE, no. 8, 1977, 1722-1731.

4. Theory

80. Basov, N.G., A.N. Brunin, V.A. Danilychev, A.G. Degtyarev, V.A. Dolgikh, and O.M. Kerimov (1). High pressure laser emitting in the UV spectral region using a KrF molecule. KE, no. 7, 1977, 1595-1597.
81. Fominskiy, L.P. (0). Non-selfsustained discharge with recuperation of the ionizing beam. ZhPMTF, no. 4, 1977, 40-47.

82. Gordiyets, B.F., L.I. Gudzenko, and V.Ya. Panchenko (1). Solar-pumped gas laser. ZhETF P, v. 26, no. 3, 1977, 163-165.

83. Izmaylov, I.A., V.A. Kochelap, and Yu.A. Kukibnyy (6). Amplification of light in photorecombination reactions induced by a shock wave.

IN: Sb 6, 18-36.

D. CHEMICAL LASERS

1. $\text{CS}_2 + \text{O}_2$

84. Bystrova, T.V., and V.B. Librovich (431). Structure of a plane flame of a weak mixture of $\text{CS}_2 - \text{O}_2$ over a cooled porous burner. FGiV, no. 4, 1977, 512-521.

2. Miscellaneous

85. Igoshin, V.I., and A.N. Orayevskiy (1). Efficiency of a chemical laser under conditions of rotational equilibrium with some deviations. KSpF, no. 7, 1976, 27-31. (RZhRadiot, 7/77, 7Ye100)

E. COMPONENTS

1. Resonators

86. Berger, N.K., I.A. Deryugin, Yu.N. Luk'yanov, and Yu.Ye. Studenikin (0). Open offset resonator with spherical mirrors. OIS, v. 43, no. 2, 1977, 306-310.

87. Boyko, B.B., I.M. Vashkevich, I.Ye. Zuykov, and N.S. Petrov (0). Quality and spectral characteristics of lasing in a laser with a two-dimensional beam path in the resonator. ZhPS, v. 27, no. 2, 1977, 215-221.

88. Kirsanov, B.P., and A.M. Leontovich (1). Using the Wentzel-Kramers-Brillouin method to design laser resonators with an active medium.
IN: Tr 1, 141-161.
89. Petrov, V.I., and N.N. Petrova (0). Effect of plane parallel plates, placed in the resonator, on the losses and lasing spectrum of a laser.
Deposit at VINITI, no. 1465-77, 18 April 1977, 8 p. (RZhF, 8/77, 8D1208)
90. Soskin, M.S., and V.B. Taranenko (0). Laser dispersion resonators with holographic elements. IN: Sb 2, 163-165. (RZhRadiot, 7/77, 7Ye186)

2. Pump Sources

91. Agafonov, V.G., Zh.I. Alferov, V.M. Andreyev, D.Z. Garbuzov, N.Yu. Davidyuk, and V.R. Larionov (4). Producing radiation converters based on heterostructures in an AlAs-GaAs system. ZhTF, no. 8, 1977, 1756-1764.
92. Alferov, Zh.I., D.Z. Garbuzov, N.Yu. Davidyuk, and V.R. Larionov (4). Study of radiation converters based on heterostructures in an AlAs-GaAs system. ZhTF, no. 8, 1977, 1765-1771.
93. Alferov, Zh.I., V.M. Andreyev, D.Z. Garbuzov, N.Yu. Davidyuk, N.S. Dubrovskaya, B.V. Yegorov, L.M. Kogan, V.R. Larionov, B.V. Pushnyy, I.T. Rassokhin, V.Ye. Chekhimova, and L.T. Chichua (4). Mesa-construction LED's based on binary heterostructures in an AlAs-GaAs system.
ZhTF, no. 8, 1977, 1772-1777.

94. Alferov, Zh.I., V.M. Andreyev, B.V. Yegorov, S.G. Konnikov, V.M. Lantratov, and F.M. Tadzhibayev (4). Heterostructures in an Al-Ga-As system with localization of the current flow-through region. ZhTF, no. 8, 1977, 1782-1790.
95. Andreyev, V.M., D.Z. Garbuzov, N.Yu. Davidyuk, B.V. Yegorov, and B.V. Pushnyy (4). High-power LED's based on multipass heterostructures in an AlAs-GaAs system. ZhTF, no. 8, 1977, 1778-1781.
96. Babin, A.A., G.I. Freydmann, and A.N. Shchelokov (8). Multistage conversion of pump radiation energy into low frequency radiation energy. KE, no. 7, 1977, 1447-1455.
97. Bykhovskaya, L.N., I.M. Gurevich, V.V. Lopukhin, and L.F. Selivanova (141). Study of the characteristics of fast-response sealed-off dischargers, excited by laser radiation. KE, no. 8, 1977, 1708-1713.
98. Kamrukov, A.S., N.P. Kozlov, V.A. Malashchenko, and Yu.S. Protasov (24). Experimental studies of a plasma focus in erosion plasma accelerators. Part 3. Radiation properties of a dense plasma focus. ZhTF, no. 8, 1977, 1673-1683.
99. Kostin, V.N., V.V. Belous, and S.I. Shipitsyn (34). Study of a high-frequency charge between external ring electrodes and pulsed laser flashlamps. IN: Tr 3, 64-66. (RZhF, 8/77, 8G290)

100. Pavlovskaya, N.G., M.D. Tarasov, V.A. Balakin, V.P. Varava, S.I. Lobov, O.K. Surskiy, and V.A. Tsukerman (0). Superluminescence in CdS crystals under the action of pulsed x-radiation. DAN SSSR, v. 235, no. 3, 1977, 568-570.
101. Podgayetskiy, V.M. (174). Flashlamp pumping of pulsed lasers. Part 1. IN: Sb 4, 93-106.
102. Podgayetskiy, V.M. (174). Flashlamp pumping of pulsed lasers. Part 2. IN: Sb 6, 100-114.
103. Velikhov, Ye.P., V.D. Pis'menny, and A.T. Rakhimov (23,98). Non-selfsustained gas discharge for pumping c-w CO₂ lasers. UFN, v. 122, no. 3, 1977, 419-447.
104. Voytik, M.G., A.G. Molchanov, and Yu.M. Popov (1). Ionization instability of a non-selfsustained electric discharge in high-pressure noble gases. ZhTF P, no. 15, 1977, 771-774.

3. Collimators

105. Kratirov, I.A., and V.M. Pavlov (90). Collimation and focusing of a laser beam at a given distance. IVUZ Priboro, no. 8, 1977, 105-109.

4. Diffraction Lattices

106. Vorontsov, V.I., V.I. Kravchenko, Yu.N. Parkhomenko, and I.V. Shpak (51,5). Diffraction of light by a rectangular-profile reflecting diffraction lattice with finite conductivity. UFZh, no. 7, 1977, 1176-1183.

5. Filters

107. Koch, E., M. Fleischer, K. Franke, and I. Gantz (E. Germans). Pattern recognition using spectral intensity filtering. KE, no. 8, 1977, 1802.
108. Vasil'yev, A.A., P.V. Bashurin, and I.N. Kompanets (1). Tunable spatial filters in optical signal converters. KE, no. 8, 1977, 1714-1721.

6. Mirrors

109. Sokolova, Z.N., and V.B. Khalfin (4). Calculating the characteristics of Bragg mirrors, allowing for losses by radiation and absorption in a waveguide. ZhTF P, no. 16, 1977, 832-837.

7. Detectors

110. Akimov, P.S., and A.N. Kubasov (0). Ranked detection of an optical signal. IVUZ Radioelektr, no. 7, 1977, 29-30.
111. Godik, E.E., A.I. Kuznetsov, V.V. Lazarev, and V.P. Sinis (15). Anomalous impurity photoconductivity of mercury-doped germanium at room temperature. FTP, no. 8, 1977, 1465-1469.
112. Kutakhov, V.P., A.G. Mayko, and Yu.N. Fedyayev (0). Detecting short laser pulses by detectors with inertial photoresistors. Radiotekhnika, no. 2, 1977, 80-83. (RZhRadiot, 7/77, 7Ye312)
113. Sheremet'yev, A.G., and E.V. Borisov (0). Noise rejection of an optical signal receiver under unstable characteristics of the modulator. Radiotekhnika, no. 2, 1977, 92-93. (RZhRadiot, 7/77, 7Ye315)

8. Modulators

114. Belokrinitskiy, N.S., A.V. Gnatovskiy, M.V. Danileyko, V.V. Seleznev, and M.T. Shpak (5). Device for correcting a laser beam. Otkr izobr, no. 31, 1977, 511776.
115. Brzhozovskiy, B.M., V.V. Bondarev, and A.A. Ignat'yev (317). Laser radiation modulator using a diffraction lattice. PTE, no. 4, 1977, 235-236.
116. Kovalev, A.A., Yu.V. Razvin, B.N. Tyushkevich, and S.V. Serak (0). Piezooptical effect on the dynamics and spectral characteristics of an electrooptically switched laser. ZhPS, v. 27, no. 1, 1977, 42-45.
117. Mel'nikova, S.V., A.T. Anistratov, and B.V. Beznosikov (210). Optical properties of $ABCl_3$ type crystals. FTT, no. 7, 1977, 2161-2164.
118. Milinkevich, A.V., V.A. Savva, and A.M. Samson (0). Modulated giant pulses in an inertial feedback laser. Acta physica polonica, v. A50, no. 5, 1976, 737-746. (RZhRadiot, 8/77, 8Ye10)
119. Mitsa, V.M., V.S. Gerasimenko, I.D. Oleksyuk, F.V. Sopko, N.I. Dovgoshey, L.G. Kesler, and L.A. Logina (136). Optical parameters of modulation elements based on glasses of an Hg-As-S system. IN: Sb 6, 96-99.
120. Oleksyuk, I.D., V.V. Tsitrovskiy, I.D. Turyanitsa, I.M. Stoyka, and T.A. Chukhno (136). Preparation and properties of modulation and nonlinear materials based on various chalcogenides. IN: Sb 6, 93-96.

121. Pikhtin, A.N., V.T. Prokopenko, V.S. Rondarev, and A.D. Yas'kov (0). Refraction of light in GaP. ZhPS, v. 27, no. 2, 19-7, 308-314.
122. Zhiryakov, B.M., and N.I. Popov (16). Some characteristics of weak Q-switching in a ruby laser resonator. KE, no. 8, 1977, 1790-1792.

F. NONLINEAR OPTICS

1. Frequency Conversion

123. Akopyan, S.A., S.M. Arakelyan, R.V. Kochikyan, S.Ts. Nersisyan, and Yu.S. Chilingaryan (37). Efficiency of nonlinear radiation conversion from synchronized third harmonic generation in a cholesteric liquid crystal. KE, no. 7, 1977, 1441-1446.
124. Anokhov, S.P., G.A. Galich, V.I. Kravchenko, and M.S. Soskin (5). New method for c-w wide-band dynamic frequency tuning of stimulated emission. ZhTF P, no. 16, 1977, 816-820.
125. Dmitryuk, A.V., G.O. Karapetyan, A.A. Manenkov, V.V. Osiko, A.I. Ritus, and I.A. Shcherbakov (1). Correlation between cooperative sensitization efficiency and Rayleigh scattering intensity. KE, no. 8, 1977, 1661-1665.
126. Dobrzhanskiy, G.F., L.A. Kulevskiy, Yu.N. Polivanov, R.Sh. Sayakhov, and A.T. Sukhodol'skiy (1). Generation of the difference frequency in LiIO_3 crystals, tunable under dispersion phase matching conditions. KE, no. 8, 1977, 1794-1796.

127. Karlov, N.V., G.P. Kuz'min, and Ye.V. Sisakyan (1). Interference effects during measurement of the absorption coefficients of transparent materials. KE, no. 8, 1977, 1816-1818.
128. Klement'yev, V.M., Yu.G. Kolpakov, and Yu.Ya. Pecherskiy (10). Frequency conversion of a c-w HF chemical laser in nonlinear crystals. KE, no. 7, 1977, 1467-1472.
129. Konev, Yu.B., and N.I. Lipatov (1). Using optical pumping during stimulated Raman scattering in CO₂ in order to produce a high pressure tunable laser at 14 and 16 μ . KE, no. 8, 1977, 1792-1794.
130. Kulevskiy, L.A., A.M. Prokhorov, A.D. Savel'yev, and V.V. Smirnov (0). CdSe and GaSe: nonlinear optical materials for parametric frequency conversion in the infrared. Potsdammer Forschungen, v. 8, no. 7, 1976, 139-147. (RZhF, 8/77, 8D1126)
131. Makogon, M.M. (0). Wide-range tuning of a ruby laser by interference-polarization filters. IVUZ Fiz, no. 7, 1977, 154.
132. Makogon, M.M., V.I. Serdyukov, and A.M. Solodov (78). Continuous dynamic tuning of pulsed laser radiation frequency. KE, no. 7, 1977, 1550-1552.
133. Shigorin, V.D. (1). Study of second harmonic generation in molecular crystals. IN: Tr 1, 78-140.
134. Tagiyev, Z.A., and A.S. Chirkin (2). The efficiency of optical frequency conversion in inhomogeneous nonlinear media. KE, no. 7, 1977, 1503-1508.

135. Zhmudskiy, A.Z., A.M. Steba, and V.L. Strizhevskiy (51). Harmonic generation in gases by divergent radiation. IN: Sb 4, 45-53.

2. Parametric Processes

136. Ignatavichyus, M.V., A.S. Piskarskas, A.Yu. Stabinis, and A.S. Yuozapavichyus (0). Four-photon parametric frequency-tunable mixing of picosecond optical wave packets. ZhTF P, no. 16, 1977, 808-811.
137. Karpenko, S.G., F.N. Marchevskiy, and V.L. Strizhevskiy (51). Polariton parametric oscillation inside a laser resonator. KE, no. 7, 1977, 1552-1556.

3. Stimulated Scattering

a. Raman

138. Arbatskaya, A.N. (1). Study of the angular distribution of stimulated Raman scattering. IN: Tr 4, 3-48.
139. Butylkin, V.S., G.V. Venkin, L.L. Kulyuk, D.I. Maleyev, Yu.G. Khronopulo, and M.F. Shalyayev (2). The role of parametric and Raman processes during the emission of the axial second Stokes component in stimulated Raman scattering. KE, no. 7, 1977, 1537-1546.
140. Dzhotyan, G.P., Yu.Ye. D'yakov, and V.G. Sushko (2). Theory of a transient regime of stimulated Raman scattering during saturation. VMU, no. 4, 1977, 95-102.

141. Herrmann, J. (East German). The correlation between Stokes and anti-Stokes radiation and the effect of phase modulation during stimulated Raman scattering of ultrashort pulses in a dispersion medium.
KE, no. 8, 1977, 1779-1787.
142. Karagodova, T.Ya., and A.I. Karagodov (0). Study of stimulated electron Raman scattering at magnetic sublevels of atoms. OIS, v. 43, no. 2, 1977, 376-377.
143. Kondilenko, Ye.I., and V.I. Malyy (0). Anomalous broadening of stimulated Raman scattering lines in liquids. OIS, v. 43, no. 1, 1977, 59-63.
144. Kormer, S.B., G.G. Kochemasov, V.D. Nikolayev, and V.D. Urlin (0). Spurious transverse emission in Raman lasers with cryogenic active media. KE, no. 7, 1977, 1566-1570.
145. Kudryavtseva, A.D. (1). Study of the formation and self-focusing of stimulated Raman scattering in condensed media. IN: Tr 4, 49-99.
146. Makhviladze, T.M., and M.Ye. Sarychev (1). Stationary stimulated Raman scattering regimes in an ultrashort pulse field. IN: Tr 4, 145-156.
147. Makhviladze, T.M., and M.Ye. Sarychev (1). Angular distribution of stimulated Raman scattering. IN: Tr 4, 157-174.
148. Marchevskiy, F.N., and V.L. Strizhevskiy (51). Nonstationary Raman scattering by vibrational and polariton excitations. IN: Sb 4, 79-90.

149. Marchevskiy, F.N., V.L. Strizhevskiy, and V.P. Feshchenko (51).
Correlation spectroscopy of nonstationary Raman scattering by polaritons.
IN: Sb 4, 90-93.
150. Morozova, Ye.A. (1). Study of the spectral intensity distribution of components of stimulated Raman scattering in matter in a condensed state. IN: Tr 4, 100-144.
151. Zolin, V.F., and M.A. Samokhina (15). Stimulated Raman scattering spectra in a liquid optical fiber. KE, no. 7, 1977, 1604-1606.
- b. Rayleigh
152. Zaskal'ko, O.P., and V.S. Starunov (1). Spectral and time characteristics of stimulated Rayleigh line-wing scattering in an external transverse resonator. ZhETF P, v. 26, no. 3, 1977, 145-149.
- c. Miscellaneous Scattering
153. Arutyunyan, V.M., G.G. Adonts, T.A. Papazyan, S.M. Sarkisyan, G.M. Arzumanyan, and T.E. Meliksetyan (37). Spectral-angular distribution of stimulated four-photon resonance scattering in a three-level system. IAN Arm, no. 5, 1977, 338-346.
154. Dubrovskiy, V.A., and B.G. Tsikin (99). Stimulated scattering in a Compton laser by decelerated waves (semiclassical theory). KE, no. 7, 1977, 1473-1481.

4. Self-focusing

155. Paturyan, S.V., and N.V. Shakhnazaryan (37). Self-focusing during the interaction of two intense waves in a system of multilevel atoms. IAN Arm, no. 4, 1977, 261-266.
156. Radchenko, V.V., and G.M. Fedorov (98). Nonlinear focal region from nonstationary thermal self-focusing of laser radiation in optical glass. KE, no. 8, 1977, 1754-1760.

5. Acoustic Interaction

157. Belokon', V.A., O.V. Rudenko, and R.V. Khokhlov (2). Aerodynamic phenomena during supersonic flow over a laser beam. Akusticheskiy zhurnal, no. 4, 1977, 632-634.
158. Belova, G.N. (21). Internal modulation of gas laser radiation using acoustic surface waves. KE, no. 7, 1977, 1592-1595.
159. Bozhkov, A.I., F.V. Bunkin, Al.A. Kolomenskiy, A.I. Malyarovskiy, and V.G. Mikhalevich (0). Study of the acoustic field of a moving optoacoustic antenna. IN: Sb 7, 5-8.
160. Mkrtchyan, A.R., and L.A. Kocharyan (37). The effect of ultrasonic excitations on a gamma-resonance line width. KE, no. 7, 1977, 1581-1582.

6. General Theory

161. Krulikovskiy, B.K., M.P. Lisitsa, U.Nasyrov, and I.V. Fekeshgazi (6). Nonlinear absorption of ruby laser radiation in crystalline and glassy As_2S_3 . IN: Sb 4, 74-79.

162. Kuz'min, M.V., and V.N. Sazonov (1). Theory of excitation of a quantum nonlinear oscillator by a harmonic force. ZhETF, v. 73, no. 2, 1977, 422-429.

G. SPECTROSCOPY OF LASER MATERIALS

163. Aristov, A.V., and V.S. Shevandin (0). Spectra of stimulated singlet-singlet absorption in rhodamine dyes in the 15000-25000 cm^{-1} range. OIS, v. 43, no. 2, 1977, 228-232.
164. Bagdasarov, Kh.S., L.B. Pasternak, and B.K. Sevast'yanov (13). Radiation color centers in $\text{Y}_3\text{Al}_5\text{O}_{12}:\text{Cr}^{3+}$ crystals. KE, no. 8, 1977, 1702-1707.

H. ULTRASHORT PULSE GENERATION

165. Heumann, E., W. Triebel, and B. Wilhelmi (NS). Device for obtaining ultrashort optical pulses. Patent GDR, no. 119916, issued 12 May 1976. (RZhRadiot, 7/77, 7Ye192)

J. THEORETICAL ASPECTS OF ADVANCED LASERS

166. Vysotskiy, V.I., and V.I. Vorontsov (51). Amplification in a parametric nonthreshold X-ray (gamma) laser. ZhETF, v. 73, no. 1, 1977, 54-70.

K. GENERAL LASER THEORY

167. Chibisov, M.I., and S.I. Yakovlenko (23). Vibrational autoionization of a molecule and recombination of nonsymmetric molecular ions. ZhETF, v. 73, no. 1, 1977, 41-53.

168. Kitayev, Yu.E., and V.B. Khal'fin (4). Discrimination of symmetric and antisymmetric modes in distributed feedback lasers. ZhTF P, no. 13, 1977, 615-620.
169. Kravchenko, V.I., A.A. Smirnov, and M.S. Soskin (5). Laser [with a dispersion prism between the active and nonlinear elements]. Otkr izobr, no. 31, 1977, 346999.
170. Malov, A.N., V.N. Morozov, I.N. Kompanets, and Yu.M. Popov (1). Enhancing the resolving capabilities of coherent optical systems by using aperture synthesis. KE, no. 7, 1977, 1608-1610.
171. Nefed'yev, L.A., and A.I. Siraziyev (214). Coherent optical and acoustic responses in degenerated and multilevel systems. IN: Tr 5, 71-105. (RZhF, 8/77, 8D1096)
172. Tron'ko, V.D. (51). Basic propositions of the matrix theory of electro- and magnetooptic active media. IN: Sb 6, 53-60.
173. Zusman, L.D. (77). Kinetics of luminescence damping in the jump mechanism of quenching. ZhETF, v. 73, no. 2, 1977, 662-670.

II. LASER APPLICATIONS

A. BIOLOGICAL EFFECTS

174. Bogush, N.A., V.A. Mostovnikov, S.I. Mokhoreva, A.T. Pikulev, A.N. Rubinov, and I.V. Khokhlov (3,87). Mechanism of the broad-spectrum stimulating action of laser radiation [on enzymes]. DAN B, no. 8, 1977, 759-762.
175. Boyko, V.A., and I.V. Kholin (0). Laser plasma in biology. Priroda, no. 7, 1977, 129-130.
176. Savin, B.M., and Ye.Ye. Kolchin (429). Physiological principles of visual perception stimulated by IR radiation. DAN SSSR, v. 235, no. 6, 1977, 1459-1461.
177. The "Skal'pel'" laser surgical apparatus [patent pending]. Otkr izobr, no. 25, 1977, p. 315.

B. COMMUNICATIONS SYSTEMS

178. Alishev, Ya.V., and A.A. Berkutov (430). Improving the noise rejection of an optical signal receiver in a laser communications line with a frequency-modulated subcarrier. IN: Sb 6, 114-116.
179. Alyab'yev, B.V., N.G. Basov, A.A. Zaretskiy, M.A. Kattsev, I.I. Klimov, V.D. Kurnosov, A.A. Matsveyko, V.N. Morozov, Yu.M. Popov, D.K. Sattarov, S.S. Safiulina, A.S. Semenov, A.B. Sergeyev, M.F. Stel'makh, R.P. Shidlovskiy, and I.V. Yashumov (0). Eight-channel fiber optic communications link between computer systems. KE, no. 7, 1977, 1610-1613.

180. Artyushin, L.F., O.I. Ioshin, O.G. Ovilko, and S.G. Muchiyev (231).
Motion-picture television system for printing and recording a color image by a laser beam on a motion picture film with film materials and videotape. TKiT, no. 7, 1977, 3-11.

181. Bazarnyy, Ye.M., V.I. Borodulin, Yu.V. Gulyayev, V.N. Listvin, V.T. Potapov, V.P. Sosnin, M.F. Stel'makh, D.P. Tregub, B.B. Elenkrig, and V.I. Shveykin (0). Using semiconductor terminals in high-information-capacity fiber-optic communication lines. RiE, no. 7, 1977, 1534-1537.

182. Bozhevol'nyy, S.I., Ye.M. Zolotov, V.A. Kiselev, A.M. Prokhorov, and Ye.A. Shcherbakov (1). Focusing diffraction lattices for integrated optics. ZhTF P, no. 15, 1977, 746-750.

183. Bryskina, I.V., V.N. Deryagin, L.Ye. Marasin, and Yu.V. Popov (7).
Effect of time characteristics of a semiconductor laser in a pulsed-phase optical DME, on the accuracy of distance measurement by the DME.
OMP, no. 8, 1977, 49-51.

184. Dianov, Ye.M., A.A. Manenkov, and A.I. Ritus (1). Brillouin and Rayleigh scattering in fiber light guides: measurement of angular distribution of the scattering intensity, scattering loss and polarization rotation.
KE, no. 7, 1977, 1488-1496.

185. Grigor'yev, V.M. (160), V.N. Kosolov, and V.V. Yurchev (174).
Possibility of using single-pulse ruby lasers in autonomous weather stations. IN: Sb 8, 3-6.

186. Grigor'yev, V.M. (160), V.N. Kosolobov, and V.V. Yurchev (174).
Study of the effect of concentrating chromium ions in the active element,
on the energy characteristics of a ruby laser for autonomous weather
stations, in the $\pm 50^\circ$ C temperature range. IN: Sb 8, 6-9.
187. Grigor'yev, V.M. (160). Laser cloud-ceilometers (review).
IN: Sb 9, 3-8.
188. Gus'kov, N.A., and O.L. Penov (0). Noise rejection of analog optical
communications channels. Radiotekhnika, no. 2, 1977, 84-86.
(RZhRadiot, 7/77, 7Ye316)
189. Nesic, D. (NS). Optical transmission of information. Telekomunikacije,
no. 4, 1976, 9-14. (RZhRadiot, 8/77, 8Ye250)
190. Nesterov, Z.V., Yu.V. Popov, V.M. Fedulov, D.K. Sattarov, and K.M.
Freyvert (0). Transmission of high frequency modulated radiation by
fiber lightguides. KE, no. 7, 1977, 1597-1600.
191. Pan'kin, V.G., V.Yu. Pchelkin, and V.V. Shashkin (10). The use of the
WKB method for determining the refractive index profile in plane
diffusion waveguides. KE, no. 7, 1977, 1497-1502.
192. Volodin, Ye.B., and K.K. Svidzinskiy (0). Possibility of constructing
integrated controlled transparencies for optical digital technology
and communications. Avtometriya, no. 4, 1977, 68-76.
193. Vorob'yev, Yu.S., O.I. Gorbunov, Yu.K. Rudov, and V.T. Khrykin (0).
Quantum electronic devices in experimental fiber optic communications
link installations. KE, no. 8, 1977, 1796-1799.

194. Zolotov, Ye.M., V.A. Kiselev, V.M. Pelekhatyy, A.M. Prokhorov, and Ye.A. Shcherbakov (1). Diffractional radiation and excitation of E and H waves in diffuse optical waveguides. KE, no. 7, 1977, 1426-1432.

C. BEAM PROPAGATION

1. In the Atmosphere

195. Donchenko, V.A., M.V. Kabanov, and P.A. Pal'yanov (0). Preliminary results of experimental studies on the propagation of picosecond laser pulses in a scattering medium. IN: Sb 10, 5-13. (RZhRadiot, 8/77, 8Ye284)
196. Donchenko, V.A., Yu.I. Kulakov, and V.V. Terent'yev (0). Experimental studies of the propagation of short laser pulses in haze. Experimental apparatus and methods. IN: Sb 11, 180-184. (RZhGeofiz, 7/77, 7B87)
197. Donchenko, V.A., Yu.I. Kulakov, and V.V. Terent'yev (0). Experimental studies of the propagation of short laser pulses in haze. Depolarization of radiation scattered at 180°. IN: Sb 11, 185-189. (RZhF, 8/77, 8D1086)
198. Donchenko, V.A., and I.P. Koktorov (0). Evaluating the possibilities of probing the atmosphere at 2.36 μ . IN: Sb 11, 190-197. (RZhGeofiz, 7/77, 7B86)
199. Galakhov, N.V., A.V. Yefremov, A.F. Zhukov, V.V. Reyno, and R.Sh. Tsvyk (78). Statistical characteristics of intensity fluctuations of laser radiation during propagation in precipitation. Institut optiki atmosfery SOAN. Preprint, no. 17, 1976, 52 p. (RZhGeofiz, 7/77, 7B85)

200. Gurvich, A.S., M.A. Kallistratova, and F.E. Martvel' (64). Study of strong fluctuations of optical intensity in a turbulent medium with a small wave parameter. IVUZ Radiofiz, no. 7, 1977, 1020-1031.
201. Kabanov, M.V. (0). Interpreting the effects of scattering of ultrashort pulses of optical radiation in disperse media. IN: Sb 10, 14-17. (RZhRadiot, 8/77, 8Ye324)
202. Kondilenko, I.I., P.A. Korotkov, and O.K. Kostko (51). Raman lidar spectroscopy of the atmosphere. IN: Sb 4, 24-45.
203. Lugin, E.V. (0). Propagation of an ultrashort pulse in the band of an absorption gas. IN: Sb 10, 18-27. (RZhRadiot, 8/77, 8Ye373)
204. Prishivalko, A.P. (3). Relative humidity and light scattering by systems of homogeneous and two-level atmospheric aerosol particles. FAiO, no. 8, 1977, 828-837.
205. Volkovitskiy, O.A. (0). Changing the transparency of an aqueous aerosol at the probing frequency in its bleaching zone, using a CO₂ laser beam. RiE, no. 7, 1977, 1379-1383.
206. Zborovskiy, A.A. (7). Evaluating the effect of atmospheric turbulence on the accuracy of an optical goniometer. OMP, no. 7, 1977, 9-10.
207. Zemlyanov, A.A., V.A. Pogodayev, V.N. Pozhidayev, and L.K. Chistyakova (0). Optical transparency of weakly absorbing droplets in intense optical fields. ZhPMTF, no. 4, 1977, 33-37.

2. In Liquids

208. Bozhkov, A.I., and L.L. Gyrdev (0). Effect of the surface wave state of a liquid on the directivity pattern of a "floating" optoacoustic antenna. IN: Sb 7, 9-12.
209. Kasoyev, S.G., and L.M. Lyamshev (21). Generation of sound in a liquid by a laser beam modulated by the intensity of an FM signal. Akusticheskiy zhurnal, no. 4, 1977, 608-614.
210. Kozlov, D.N., A.I. Malyarovskiy, O.G. Semenov, K.F. Shipilov, and T.A. Shmaonov (118). Study of stimulated scattering of light by a liquid surface. IN: Tr 2, 100-107. (RZhF, 8/77, 8D1161)
211. Martynenko, O.G., G.V. Myakin, V.K. Popov, A.D. Solodukhin, and S.I. Stepanov (0). Optical methods for studying various parameters of heat and mass exchange in the sea. Inzhenerno-fizicheskiy zhurnal, no. 4, 1977, 602-606. (RZhF, 8/77, 8D1091)
212. Rozhdestvenskaya, N.B., E.N. Gorbacheva, and A.N. Ryabinin (12). Apparatus for determining the coefficient of scattering of light in liquid by an absolute method. PTE, no. 4, 1977, 241-243.
213. Teslenko, V.S. (76). Study of optoacoustic and optohydrodynamic parameters of laser breakdown in liquids. KE, no. 8, 1977, 1732-1737.
214. Vas'kova, V.I., I.A. Viktorov, and A.A. Talashev (21). Diffraction of light by surface waves at a solid-liquid interface. Akusticheskiy zhurnal, no. 4, 1977, 644-646.

3. Theory

215. Pinchuk, V.P., and N.P. Romanov (0). Absorption cross-section of arbitrary-size spherical particles with moderate absorption. ZhPS, v. 27, no. 1, 1977, 109-116.
216. Sorokin, Yu.M. (94). Using scanning beams to form a positive heat lens in a defocusing medium. ZhTF P, no. 15, 1977, 755-758.
217. Zavorotnyy, V.U., V.I. Klyatskin, and V.I. Tatarskiy (64). Strong intensity fluctuations of electromagnetic waves in randomly inhomogeneous media. ZhETF, v. 73, no. 2, 1977, 481-497.

D. COMPUTER TECHNOLOGY

218. Zaletayev, S.P., and L.F. Taure (177,427). Photorefractive in thin layers of organic compounds. IAN Lat, no. 4, 1977, 15-17.

E. HOLOGRAPHY

219. Anikin, A.A., and A.A. Sokolov (0). Determining the effective depth for recording optical information in absorptive materials. Avtometriya, no. 4, 1977, 84-87.
220. Artyushenko, V.G., and A.V. Nikolaychik (118). Measuring the distribution of the index of refraction by the cross-section of an optical fiber. IN: Tr 2, 13-16. (RZhF, 8/77, 8D1517)
221. Avrorin, A.V., Yu.K. Volkov, Ye.A. Kopylov, M.I. Kotlyachkov, and V.V. Kuznetsov (0). Effect of polarization phenomena on the image quality in SHF holography. Avtometriya, no. 4, 1977, 76-79.

222. Berdonosov, V.A., V.I. Gorbunov, A.K. Stoyanov, and L.K. Yanisova (197).
Two-frequency hologram formation in the shortwave range. IN: Tr 6,
148-153. (RZhF, 8/77, 8D1473)
223. Berdonosov, V.A., V.I. Gorbunov, A.A. Popov, and A.K. Stoyanov (197).
Obtaining three-dimensional X-ray images from shadow X-ray photographs
by holographic methods. IN: Tr 6, 157-159. (RZhRadiot, 8/77, 8Ye422)
224. Berezin, P.D., I.N. Kompanets, A.G. Timushev, I.V. Tunimanova, and
V.A. Tsekhomskiy (1). Optimization of the process of holographic data
recording in photochromatic glasses. KE, no. 7, 1977, 1587-1589.
225. Gnatovskiy, A.V., V.V. Seleznev, and M.T. Shpak (5). Holographic
method for reducing laser radiation divergence. IN: Sb 6, 36-53.
226. Kalashnikov, S.P., I.I. Klimov, V.V. Nikitin, and G.I. Semenov (1).
Recording Fourier holograms with pulsed semiconductor laser radiation.
KE, no. 8, 1977, 1666-1672.
227. Kartashov, O.G., L.F. Kupchenko, and T.G. Lishchina (0). Using
diffraction lattices to adjust holographic matching filtration
systems. PTE, no. 4, 1977, 228-229.
228. Kukhar', N.R. (0). Noise in the graininess of excess Fourier-holograms
for one class of diffusers. OIS, v. 43, no. 1, 1977, 129-134.
229. Kulipanov, G.N., and A.N. Skriskiy (79). Use of synchrotron radiation:
status and prospects. UFN, v. 122, no. 3, 1977, 369-418.
230. Morozov, V.N. (1). The theory of holograms with a coded reference beam.
KE, no. 8, 1977, 1694-1701.

231. Nakhodkin, N.G. (51). Thermoplastic media. IN: Sb 6, 66-93.
232. Polikanin, A.M., B.A. Budkevich, V.I. Kovalevskiy, and V.V. Sviridov (299). Some holographic characteristics of $Hg_3Se_2I_2$ films. ZhNIPFIK, no. 4, 1977, 306-307.
233. Vaytsel', V.I. (0). Using holographic methods in stellar interferometry. OIS, v. 43, no. 2, 1977, 324-330.
234. Verbovetskiy, A.A., L.P. Vakhtanova, E.A. Gruz, and K.S. Bogomolov (0). Parameters of bleached holograms with binary information during physical development. OIS, v. 43, no. 1, 1977, 135-138.
235. Vinetskiy, V.L., T.Ye. Zaporozhets, N.V. Kukhtarev, A.S. Matviychuk, M.S. Soskin, and G.A. Kholodar' (5,51). Conversion of coherent optical beam energy by semiconductors in crossed electrical and magnetic fields. UFZh, no. 7, 1977, 1141-1146.
236. Vlasov, N.G., and A.Ye. Shtan'ko (0). Possibility of developing interference methods based on spatial correlation of radiation intensity of heat sources. OIS, v. 43, no. 1, 1977, 192-194.
237. Vlasov, V.I., A.A. Kikineshi, D.G. Semak, and D.V. Chepur (136). Temperature dependence of the efficiency of optical recording and erasure in AsSe chalcogenide glass. UFZh, no. 7, 1977, 1199-1202.
238. Yevtikhiyev, N.N., V.D. Baurin, A.R. Krebs, V.G. Pyn'ko, N.A. Ekonomov, and N.A. Zamyatina (161). Properties of single-crystal cobalt ferrite films and the possibility of using them as recording media in holography. ZhTF, no. 7, 1977, 1529-1533.

239. Zeylikovich, I.S. (0). Visibility and localization of bands in holographic interferometry of phase objects with a scatterer.
Ois, v. 43, no. 1, 1977, 190-192.

F. LASER-INDUCED CHEMICAL REACTIONS

240. Ambartsumyan, R.V., Yu.A. Gorokhov, G.N. Makarov, A.A. Puretskiy, and N.P. Furzikov (72). Osmium isotope separation by OsO_4 molecule dissociation in a dual frequency IR laser field. KE, no. 7, 1977, 1590-1591.
241. Batkin, I.S., Yu.G. Smirnov, and T.A. Churakova (137). Mesonic atoms with light nuclei in a field of resonant electromagnetic radiation. ZhETF, v. 73, no. 2, 1977, 387-393.
242. Bekov, G.I., V.S. Letokhov, and V.I. Mishin (72). Ionization by a pulsed electric field of high-lying states of the sodium atom. ZhETF, v. 73, no. 1, 1977, 157-165.
243. Gershenzon, Yu.M., V.B. Rozenshteyn, and S.Ya. Umanskiy (0). Heterogeneous relaxation of the vibrational energy of molecules. IN: Sb 12, 61-97.
244. Kalanov, T.Z., A.I. Osipov, and V.Ya. Panchenko (0). Distribution of vibrational energy in a binary reactive mixture of molecular gases in a resonant laser radiation field. ZhPMTF, no. 4, 1977, 3-12.
245. Karlov, N.V., B.B. Krynetskiy, and O.M. Stel'makh (1). Direct experimental determination of the length of time for spontaneous decay of the 2P level of the Li atom. ZhTF P, no. 14, 1977, 716-718.

246. Letokhov, V.S., V.I. Mishin, and A.A. Puretskiy (0). Selective photoionization of atoms by laser radiation. IN: Sb 12, 3-60.
 247. Polkovnikov, B.F. (0). Second scientific and technical convention-seminar on the problem "laser isotope separation," Bakuriani, 6-13 March 1977. KE, no. 8, 1977, 1840-1844.
 248. Shalagin, A.M. (72). Determining relaxation characteristics by a polarization method in nonlinear spectroscopy. ZhETF, v. 73, no. 1, 1977, 99-111.
 249. Skorobogatov, G.A. (12). Radial vibrations during pulsed photolysis of gases in a cylindrical cell. ZhTF, no. 7, 1977, 1551-1554.
- G. MEASUREMENT OF LASER PARAMETERS
250. Aristov, A.V., D.A. Kozlovskiy, M.B. Levin, and A.S. Cherkasov (0). Agreement between the calculated and experimental lasing powers of flashlamp-pumped rhodamine lasers. Ois, v. 43, no. 1, 1977, 118-124.
 251. Astrov, Yu.A., V.V. Yegorov, Sh.S. Kasymov, V.M. Murugov, L.G. Paritskiy, S.M. Ryvkin, and Yu.N. Sheremet'yev (4). New photographic device for studying the characteristics of IR laser radiation. KE, no. 8, 1977, 1681-1685.
 252. Astrov, Yu.A., V.V. Yegorov, V.M. Murugov, L.G. Paritskiy, L.M. Portsel', S.M. Ryvkin, and Yu.N. Sheremet'yev (4). Semiconductor ionization-type photographic device for recording laser radiation in the 1-3.8 μ spectral range. ZhTF P, no. 14, 1977, 701-704.

253. Benditskiy, A.A., A.A. Bogatikov, V.Ye. Kravtsov, G.I. Rukman, Ye.B. Shelemin, and A.V. Khromov (141). The performance of an aerosol coupler under intense radiation. KE, no. 7, 1977, 1559-1560.
254. Borisovskiy, S.P., V.A. Vereykin, A.N. Vlasov, Ye.P. Ostapchenko, V.V. Teselkin, Ye.G. Chulyayeva, and Yu.M. Yakovlev (0). Measuring the stability and reproducibility of the lasing frequency of gas lasers. IT, no. 8, 1977, 45-48.
255. Durmanov, S.T., and L.N. Plyashkevich (0). Measuring the optical energy contrast of a high-power laser. PTE, no. 4, 1977, 230-232.
256. Gnatovskiy, A.V., A.P. Loginov, V.V. Seleznev, and M.T. Shpak (5). Interferometric method for correcting the output characteristics of gas lasers. UFZh, no. 8, 1977, 1390-1392.
257. Godlevskiy, A.P., V.P. Lopasov, and S.F. Luk'yanenko (78). Obtaining quantitative data on absorption line parameters in intracavity spectroscopy. KE, no. 8, 1977, 1771-1778.
258. The IMO-2-2 standard second class meter for measuring medium-power lasers. IT, no. 7, 1977, 90.
259. Kratirov, I.A. (90). Optimal parameters of a laser beam at the output of an optical system. IVUZ Priboro, no. 7, 1977, 97-101.
260. Leont'yev, V.G., and S.V. Pis'mennyy (0). Output power of a gas laser, allowing for unsaturated gain along the tube. OIS, v. 43, no. 2, 1977, 366-368.

261. Litvinov, V.F., A.S. Semenov, A.B. Sergeyev, and V.F. Trukhin (0). Study of the picosecond structure of semiconductor injection laser radiation. IN: Sb 1, 145-153. (RZhF, 8/77, 8D1416)
262. Lobachev, M.I., E.M. Rabinovich, and V.V. Tuchin (99). Simple method for measuring fluctuations in the diameter of a laser beam. PTE, no. 4, 1977, 233-234.
263. Lopasov, V.P., and A.K. Toropov (0). Problems of accuracy control in measuring the spectral characteristics of lasers in laser spectroscopy. IT, no. 8, 1977, 43-45.
264. Lovinskiy, L.S., L.N. Samoylov, V.I. Sapritskiy, and B.M. Stepanov (0). Special state standard unit for power density of illumination of c-w optical radiation in a continuous spectrum in the 0.2-4.5 μ range. IT, no. 8, 1977, 3-4.
265. Peschel, C., A. Wiemer, H. Orzegowski, and G. Thiede (NS). Device for calculating the energy from several laser resonators. Patent GDR, no. 119914, issued 12 May 1976. (RZhRadiot, 7/77, 7Ye288)
266. Sapritskiy, V.I., L.S. Lovinskiy, L.N. Samoylov, and B.M. Stepanov (0). Special state standard unit for spectral power density of brightness of c-w optical radiation in a continuous spectrum in the 0.25-2.5 μ range. IT, no. 8, 1977, 5-7.
267. Solomakha, D.A., and A.K. Toropov (129). Measuring laser wavelengths (survey). KE, no. 8, 1977, 1637-1660.

268. Tuchin, V.V., and V.I. Chetverikov (0). Calculating the frequency- and amplitude-fluctuation spectra of a gas laser during fluctuations of the discharge current. RiE, no. 8, 1977, 1635-1644.
269. Yevteyev, G.V., and V.V. Chernigovskiy (110). Experimental demonstration of the necessity for using a Fresnel approximation in calculating the conversion of a laser beam. IVUZ Priboro, no. 7, 1977, 101-104.

H. LASER MEASUREMENT APPLICATIONS

1. Direct Measurement by Laser

270. Algazin, Yu.B., A.V. Arkhipenko, M.R. Baklanov, Yu.A. Blyumkina, K.K. Svitashchev, L.V. Semenenko, and S.A. Stepanov (0). Study and analysis of the operating characteristics of an automated ellipsometric apparatus. OIS, v. 43, no. 1, 1977, 168-175.
271. Alkhimov, A.P., A.N. Papyrin, A.L. Predein, and R.I. Soloukhin (0). Experimental study of the effect of a fast particle delay in a supersonic gas flow. ZhPMTF, no. 4, 1977, 80-88.
272. Al'tshuler, G.B., Ye.D. Isyanova, V.B. Karasev, A.L. Levit, V.M. Ovchinnikov, and S.F. Sharlay (0). Analysis of the criticality to misalignment of ring schemes in laser resonators. KE, no. 7, 1977, 1517-1521.
273. Anokhov, S.P., Yu.Yu. Zhupan, V.I. Kravchenko, and V.V. Tarabrov (5). Laser [with a ring dispersion resonator and a passive switch]. Otkr izobr, no. 31, 1977, 473475.

274. Antal, K., I. Bolla, E. Tanos, and A. Pilinyi (NS). Study of MHD generators and methods of plasma diagnostics. Muszaki tudomány, no. 1-2, 1976, 53-78. (RZhF, 8/77, 8G372)
275. Atutov, S.N., V.P. Kochanov, E.G. Saprykin, and G.I. Smirnov (0). Fabry-Perot laser spectrometer. Ois, v. 43, no. 2, 1977, 331-338.
276. Baklanov, Ye.V., and V.P. Chebotayev (10). Setup of precision physical experiments in optics. UFN, v. 122, no. 3, 1977, 513-524.
277. Baptizmanskii, V.V., I.I. Novak, and A. Chmel' (0). Raman spectrum of disturbed total internal reflection in α -quartz. Ois, v. 43, no. 1, 1977, 188-190.
278. Bessmel'tsev, V.P., V.N. Burnashov, and V.V. Vorob'yev (75). Pulsed counting converter for a laser displacement meter. Otkr izobr, no. 23, 1977, 528778
279. Birman, A.Ya., and A.F. Savushkin (0). Nonlinear phenomena in a ring laser with an inhomogeneous nonmutual element. Ois, v. 43, no. 1, 1977, 114-117.
280. Birman, A.Ya., A.F. Savushkin, and Ye.N. Tropkin (0). Competition of opposed waves in a monoisotopic ring laser with an anisotropic resonator. Ois, v. 43, no. 2, 1977, 320-323.
281. Bodner, V.A., and Yu.F. Zastrogin (0). Using a laser interferometer with a three-mirror resonator in machine building. IN: Sb 13, 3-14. (RZhRadiot, 8/77, 8Ye392)

282. Butov, V.L., and A.I. Povrozin (0). Measuring the velocity of water flows in wide troughs by means of a laser Doppler velocimeter. Avtometriya, no. 4, 1977, 64-67.
283. Chernyshev, L.L., V.L. Konyukov, and Yu.V. Chernobrovtssev (149). Using an optical Doppler method to measure the parameters of a turbulent current in turbomachine grids. IN: Tr 7, 133-136. (RZhMekh, 8/77, 8B1324)
284. Danilevko, M.V., V.R. Kozubovskiy, and A.P. Nedavniy (0). Nonlinear laser spectroscopy within a Doppler line. IN: Sb 4, 3-24.
285. Danilevko, M.V., and A.P. Nedavniy (5). Resonance phenomena in ring lasers with nonlinear absorption. Part 1. Effects of competition and phase interaction of waves in ring lasers. IN: Sb 6, 3-17.
286. Danilyus, R., G. Dikchyus, V. Kabelka, P. Lokay, A. Piskarskas, and V. Smil'gyavichyus (49). Resonant picosecond spectroscopy based on parametric optical devices. ZhTF P, no. 15, 1977, 742-745.
287. Golovin, V.A. (19). Research and development of a laser anemometer network for single-phase and two-phase media. IN: Tr 8, 65-71. (RZhMekh, 8/77, 8B1322)
288. Gonchukov, S.A., V.M. Yermachenko, V.N. Petrovskiy, and Ye.D. Protsenko (16). Two-mode lock-in in a standing wave gas laser. ZhETF, v. 73, no. 2, 1977, 462-469.
289. Gorbachenko, G.M., S.A. Zverev, V.V. Kushin, and V.K. Lyapidevskiy (0). Using thermoluminescence detectors for spectrometry of pulsed x-radiation in a hot plasma. IAN Fiz, no. 7, 1977, 1321-1325.

290. Gramolina, N.O., Yu.A. Komarov, V.M. Krylov, and G.F. Muchnik (0). Electrooptic means for measuring the concentration of electrolytes. IT, no. 7, 1977, 82-83.
291. Kondratov, V.A., I.I. Kosarev, and A.M. Zhidovinov (0). Laser dilatometer for measuring small negative coefficients of linear scattering. IT, no. 7, 1977, 57-59.
292. Kravchenko, V.I. (5). Traveling wave laser. Otkr izobr, no. 29, 1977, 297337.
293. Krsek, J., and A. Stejskal (NS). Control and compensation unit for a laser interferometer. Author's certificate Czechoslovakia, no. 158033, issued 15 May 1975. (RZhRadiot, 7/77, 7Ye421)
294. Ledneva, G.P., and Yu.I. Chekalinskaya (0). Polarization-frequency characteristics of complex anisotropic ring resonators with one and two coupling mirrors. ZhPS, v. 27, no. 1, 1977, 46-52.
295. Makogon, M.M., and A.M. Solodov (78). Quasistationary single-frequency lasing in a pulsed Nd:glass ring laser. ZhTF P, no. 15, 1977, 767-770.
296. Mel'nikov, N.A., E.I. Ordenko, and V.I. Chernyshev (163). Stable discharge-current source for a converter for measuring angular velocity, based on an He-Ne ring laser. IN: Tr 9, 40-43. (RZhF, 8/77, 8D1426)
297. Milovskiy, N.D., and L.L. Popova (0). Modes in a ring resonator with an auxiliary reflex mirror. Ois, v. 43, no. 2, 1977, 311-319.

298. Nazarenko, M.M., I.I. Savel'yev, S.S. Skulachenko, A.M. Khromykh, and I.I. Yudin (0). Study of Zeeman beats in a double-mode traveling wave laser. KE, no. 8, 1977, 1738-1746.
299. Nevskiy, L.B. (7). Using shift interferometers to study gas flows. OMP, no. 7, 1977, 6-9.
300. Pestov, E.G., and G.S. Kruglik (0). Interference effect of lock-in zone constriction in a two-mode ring laser. ZhPS, v. 27, no. 2, 1977, 222-225.
301. Popela, B. (NS). Device for automatic correction of a laser interferometer. Author's certificate Czechoslovakia, no. 159330, issued 15 August 1975. (RZhRadiot, 7/77, 7Ye402)
302. Povrozin, A.I., V.I. Surkov, and V.L. Butov (0). Optical Doppler velocimeter for measuring low velocities of turbulent flows. IT, no. 8, 1977, 48-49.
303. Privalov, V.Ye., and Yu.V. Filatov (163). Study of the output characteristics of a rotating ring gas laser. KE, no. 7, 1977, 1418-1425.
304. Privalov, V.Ye. (163). Raising the accuracy of measuring motion parameters by means of ring lasers. IN: Tr 9, 35-39. (RZhF, 8/77, 8D1464)
305. Privalov, V.Ye. (163). Gas ring laser for measuring angles and angular velocities. IN: Tr 9, 43-46. (RZhMekh, 8/77, 8B1336)

306. Prokopenko, V.T., V.S. Rondarev, A.V. Semenov, and A.D. Yas'kov (30). Studying the homogeneity of n-GaAs by a method of optical infrared introscopy. Zavodskaya laboratoriya, no. 8, 1977, 985.
307. Sadowski, M., and S. Ugniewski (NS). Plasma refraction measurements by means of a laser differential interferometer. JTP, no. 4, 1976, 365-371. (RZhRadiot, 7/77, 7Ye377)
308. Svitashov, K.K., A.I. Semenenko, L.V. Semenenko, and N.L. Shvarts (0). Ellipsometric measurements on rough germanium and silicon surfaces. OIS, v. 43, no. 1, 1977, 161-167.
309. Urbaniak, A. (NS). Observation of spin waves by scattering of laser light. Zeszyty naukowe Uniwersytetu Lodzkiego, ser. 2, no. 58, 1976, 73-78. (RZhF, 8/77, 8D1030)
310. Voytovich, A.P., and V.G. Dubovets (0). Effect of dispersion of the active medium on the intensity of lasing in a gas laser with a longitudinal magnetic field. ZhPS, v. 27, no. 1, 1977, 32-36.
311. Zastrogin, Yu.F. (0). Measuring small amplitudes of sinusoidal-shaped mechanical vibrations by laser interferometers with selective narrowband filters. IN: Sb 13, 15-24. (RZhRadiot, 8/77, 8Ye305)
312. Zhuravlev, V.A., O.V. Karpov, G.D. Petrov, and E.F. Yurchuk (140). Determining the parameters of a plasma by low-frequency fluctuations of scattered light. TVT, no. 4, 1977, 847-851.
313. Zuyev, V.A., and V.G. Popov (6). Using a laser to study the surface properties of semiconductors by means of photo EMF. IN: Sb 4, 53-62.

2. Laser-Excited Optical Effects

314. Aksenov, V.P., N.B. Volkov, B.G. Zhurkin, and I.G. Maksimchuk (1). Kinetics of cyclotron resonance and radiative recombination in pure Ge under laser excitation. IN: Tr 10, 83-85.
315. Aleksakhin, I.S., I.P. Zapesochnyy, and V.V. Suran (136). Process of multiphoton double ionization of the strontium atom. ZhETF P, v. 26, no. 1, 1977, 14-16.
316. Aleksandrovich, K.V., and I.A. Berezin (0). Determining the electron density by the self-reversed D_{α} deuterium line. Ois, v. 43, no. 1, 1977, 29-33.
317. Aliyev, M.R., D.N. Kozlov, and V.V. Smirnov (1). Coherent Raman spectroscopy with a high resolution in methane. ZhETF P, v. 26, no. 1, 1977, 31-34.
318. Anan'in, O.B., A.M. Baldin, Yu.D. Beznogikh, Yu.A. Bykovskiy, A.I. Govorov, L.P. Zinov'yev, Yu.P. Kozyrev, L.G. Makarov, V.A. Monchinskiy, I.K. Novikov, V.D. Peklenkov, A.M. Raspopin, and I.N. Semenyushkin (52). Achieving acceleration of carbon nuclei obtained in a laser injector at the synchrotron of the Joint Nuclear Research Institute. KE, no. 7, 1977, 1547-1549.
319. Arapov, A.P., A.I. Inyushin, V.V. Lyubchenko, V.R. Muratov, and V.M. Stepanov (0). Laser as a flash bulb for photography in darkness, using image amplifiers. ZhNIPFIK, no. 4, 1977, 253-256.

320. Avarmaa, R., and K. Mauring (0). Determining the parameters of a triplet state from fluorescence kinetics. IAN Est, no. 1, 1977, 92-95. (RZhF, 8/77, 8D844)
321. Balykin, V.I., V.I. Mishin, and V.A. Semchishen (72). Detection of small concentrations of I₂ vapor by laser excitation of fluorescence. KE, no. 7, 1977, 1556-1558.
322. Baykov, O.G., and V.G. Tuzov (7). Device for recording the spatial distribution of radiation intensity in a caustic. OMP, no. 7, 1977, 66-67.
323. Belyy, M.U., I.V. Zakharchenko, and B.A. Okhrimenko (51). Study of the spectral and luminescence kinetics of an HCL-Bi³⁺ solution. UFZh, no. 7, 1977, 1086-1089.
324. Bepalov, V.I., I.A. Batyeva, L.A. Dmitrenko, V.V. Korolikhin, S.P. Kuznetsov, and M.A. Novikov (8). Study of light absorption in the near IR range in partially deuterated KDP and α -HIO₃ crystals. KE, no. 7, 1977, 1563-1566.
325. Bonch-Bruyevich, A.M., B.A. Raykhman, and V.N. Smirnov (0). Spectrum of absorption fluctuations of GaAs near the absorption edge in a pulsed CO₂ laser radiation field. FTP, no. 8, 1977, 1622-1624.
326. Borshch, V.V., M.P. Lisitsa, P.Ye. Mozol', and I.V. Fekeshgazi (6). Photoconductivity of ZnP₂ at high excitation levels. IN: Sb 6, 60-66.
327. Bumyalene, S., and L. Klimka (50,433). Shortwave quenching of photoconductivity in copper-compensated germanium in an electric field. FTP, no. 7, 1977, 1327-1330.

328. Gadomskiy, O.N., and V.R. Nagibarov (214). Relativistic theory of the interaction of atoms in superradiance processes. IN: Tr 5, 3-47. (RZhF, 8/77, 8D1104)
329. Gavrilenko, V.I., V.L. Kononenko, T.S. Mandel'shtam, V.N. Murzin, and S.A. Saunin (1). Experimental detection of magnetodipole resonances in electron-hole droplets in germanium. ZhETF P, v. 26. no. 2, 1977, 102-106.
330. Gayzhauskas, E., I.A. Poluektov, and Yu.M. Popov (1). Coherent two-photon interaction of laser radiation with Frenkel excitons. KE, no. 7, 1977, 1578-1581.
331. Gorban', A.P., V.G. Litovchenko, V.G. Popov, and A.A. Serba (6). Photoelectric characteristics of photocells with a surface channel. FTP, no. 7, 1977, 1400-1403.
332. Gorchakov, V.I., and V.N. Sazonov (1). Using harmonic power to calculate frequency swing in a nonlinear oscillator. KE, no. 8, 1977, 1673-1680.
333. Hofmann, C. (NS). Determining the micro- and macroheterogeneities as well as the chemical and laser radiation stability of optical glass. Jenaer Rundschau, no. 1, 1977, 29-35. (RZhRadiot, 8/77, 8Ye316)
334. Ivanov, S.N., G.N. Kulipanov, I.N. Luchnik, V.V. Mikhaylin, V.B. Khlestov, and A.V. Khudyakov (0). Vacuum UV luminescence in oxides under excitation by synchrotron radiation in the X-ray region of the spectrum. IAN Fiz, no. 7, 1977, 1326-1329.

335. Kabanov, G.L., V.A. Nikolayev, A.I. Pavlov, and I.N. Slivkov (0).
Radiation source based on an optical discharge in xenon. PTE, no. 4,
1977, 222-224.
336. Kolomeyev, M.P., P.N. Svirgunov, and S.S. Khmelevtsev (220).
New diffraction effect: anomalous diffraction of grazing electromagnetic
waves by a plane boundary of transparent dielectrics. ZhETF P, v. 26,
no. 3, 1977, 153-156.
337. Kostyshin, M.T., and V.I. Min'ko (6). Evidence of noninterchangeability
in the action of c-w laser radiation on a light-sensitive PbI_2 -Ag system.
ZhNIPFIK, no. 4, 1977, 294-296.
338. Lisitsa, M.P., N.R. Kulish, and A.V. Stolyarenko (6). Using the
phenomenon of free carrier accumulation by deep centers to measure the
coefficient of two-photon absorption. IN: Sb 4, 62-68.
339. Lisitsa, M.P., G.G. Tsebulya, and S.F. Terekhova (6). Temperature
dependence of exciton photoreflexion spectra of p-ZnTe and n-CdTe
single crystals. IN: Sb 4, 72-74.
340. Manenkov, A.A., V.A. Milyayev, G.N. Mikhaylova, V.A. Sanina, and A.S.
Seferov (1). High-frequency breakdown of excitons and the kinetics
of free carriers and excitons in germanium in the presence of
electron-hole droplets. IN: Tr 10, 39-44.
341. Manenkov, A.A. (1). Using SHF methods to study the condensation of
excitons in semiconductors. IN: Tr 10, 59-65.

342. Manenkov, A.A., G.N. Mikhaylova, A.S. Seferov, and V.D. Chernetskiy (1).
Study of the effects of superheating in samples of germanium under the action of laser radiation in liquid helium. IN: Tr 10, 75-82.
343. Marmur, I.Ya., and Ya.A. Oksman (0). Positive feedback in wide-zone diode IR-detectors. FTP, no. 7, 1977, 1297-1301.
344. Medvid', A.P. (428). Bipolar effect of optical drag in current carriers in semiconductors. IAN Lat, no. 4, 1977, 78-84.
345. Mikhaylova, G.N. (1). SHF breakdown and condensation of excitons in Ge. IN: Tr 10, 5-38.
346. Mikhaylova, G.V. (0). All-Union seminar-conference on gases in metals. Zavodskaya laboratoriya, no. 1, 1977, 119-120.
347. Moskalenko, S.A., A.Kh. Rotaru, V.A. Sinyak, and P.I. Khadzhi (44).
Self-induced transparency in the exciton region of the spectrum. FTT, no. 7, 1977, 2172-2177.
348. Nozdrin, V.V., I.A. Pan'shin, and Ye.A. Podpalyy (308). Sensitometry of thin-film magnetic optical image recorders. ZhNIPFIK, no. 4, 1977, 276-279.
349. Ozols, A.O. (63). Anisotropy of photorefraction in LiNbO_3 crystals. IAN Lat, no. 4, 1977, 46-51.
350. Rozhdestvenskaya, N.B., E.N. Gorbacheva, and A.N. Ryabinin (0).
Determining the coefficient of scattering of benzine and chloroform by an absolute method. OIS, v. 42, no. 4, 1977, 656-661. (RZhF, 8/77, 8D1042)

351. Sheloput, T.A., D.V. Sheloput, and V.F. Glushkov (7). Photoelastic properties of various chalcogenide glasses. OMP, no. 7, 1977, 40-41.
352. Shitova, E.V., I.A. Yasneva, and N.A. Genkina (0). Optical properties of Si_3N_4 films. OIS, v. 43, no. 2, 1977, 244-248.
353. Slivka, V.Yu., V.S. Gerasimenko, A.S. Knyazev, and M.I. Golovey (0). Vibrational spectra of proustite (Ag_3AsS_3) crystals. OIS, v. 43, no. 2, 1977, 249-251.
354. Valyanskiy, S.I., V.A. Milyayev, G.N. Mikhaylova, and A.B. Fradkov (1). He^3 cryostat for studying excitons in germanium at temperatures below 1 K. IN: Tr 10, 66-74.
355. Vinokurov, V.A., S.S. Klyago, Yu.N. Polivanov, and K.A. Prokhorov (1). Raman light scattering by polaritons in a paratellurite crystal. KE, no. 7, 1977, 1602-1604.
356. Volkov, L.A., F.P. Kesamanly, V.F. Kovalenko, I.Ye. Maronchuk, and L.G. Shepel' (432). Luminescence properties of variable-composition $\text{In}_{1-x}\text{Ga}_x\text{P}$ solid solutions. FTP, no. 7, 1977, 1242-1246.
357. Wroz, T. (NS). Determination of effective anisotropy of the optical polarizability for two-component solutions, using an He-Ne laser. Optica applicata [Poland], no. 2, 1976, 59-63. (RZhF, 8/77, 8D1041)
358. Zubov, B.V., A.A. Manenkov, V.A. Milyayev, G.N. Mikhaylova, T.M. Murina, A.M. Prokhorov, and A.S. Seferov (1). Study of condensation of excitons in Ge by methods of SHF breakdown of excitons and luminescence during single-photon and two-photon excitation of carriers. IN: Tr 10, 45-50.

359. Zubov, B.V., A.A. Manenkov, V.A. Milyayev, G.N. Mikhaylova, T.M. Murina, V.A. Sanina, and A.S. Seferov (1). SHF absorption by nonequilibrium current carriers in germanium. Method for determining the concentration of carriers. IN: Tr 10, 51-58.

J. BEAM-TARGET INTERACTION

1. Metal Targets

360. Antonov, A.A., G.I. Kozlov, V.A. Kuznetsov, and V.A. Masyukov (17). Stationary laser crater caused by interaction of high-power c-w CO₂ laser radiation with metal and liquid. KE, no. 8, 1977, 1747-1753.
361. Dymshits, Yu.I. (0). Characteristics of the reflection of intense radiation from thin metal films. ZhTF, no. 7, 1977, 1563-1564.
362. Gagarin, A.P., I.N. Ivanova, M.N. Libenson, and S.D. Pudkov (0). Variation in the reflective properties of a metal under the action of a high-power optical flux. ZhTF, no. 7, 1977, 1523-1528.
363. Grigorov, D.Z. (Bulgarian). Heating a two-film structure by laser radiation. FikHOM, no. 4, 1977, 14-22.
364. Kokora, A.N., A.A. Zhukov, and L.Z. Epshteyn (0). Using c-w laser radiation for surface hardening of pig iron with compact inclusions of graphite. FikHOM, no. 4, 1977, 23-26.
365. Kononenko, V.G., and A.K. Yemets (34). Destruction of metal foils by a pulsed laser in the presence of a plasma cloud. UFZh, no. 8, 1977, 1378-1380.

366. Kovalenko, V.S., V.S. Chernenko, and L.F. Golovko (0). Characteristics of plane hardening of materials by laser. EOM, no. 4, 1977, 47-49.
367. Metev, S.M., V.P. Veyko, K.V. Stamenov, and Kh.A. Kalev (Bulgarians). Experimental study of laser damage to thin metal films by the quartz resonator method. KE, no. 7, 1977, 1529-1536.
368. Popov, Ye.G., S.K. Tsvetayev, and V.Yu. Kurov (118). Recording pressure pulses during the action of laser radiation on metals. IN: Tr 11, 169-173. (RZhRadiot, 8/77, 8Ye323)
369. Rykalin, N.N., A.A. Uglov, and M.M. Nizametdinov (22). Calculating the heating of materials by laser radiation, taking into account the temperature dependence of thermophysical coefficients. KE, no. 7, 1977, 1509-1516.
370. Shilov, Yu.I. (0). A "bleaching wave" occurring from the action of pulsed laser radiation on an aluminum target, and the conditions of its existence. FTT, no. 7, 1977, 1966-1968.

2. Dielectric Targets

371. Yemel'yanova, G.M., T.F. Ivanova, M.P. Votinov, V.M. Ovchinnikov, B.D. Piterkin, and Z.A. Smirnova (0). Optical transparency of copolymers of methylmethacrylate with butylacrylate. ZhTF P, no. 14, 1977, 687-690.

3. Semiconductor Targets

372. Oksman, Ya.A., and A.A. Semenov (0). Beam erosion of semi-isolating GaAs. ZhTF P, no. 16, 1977, 838-841.

4. Miscellaneous Studies

373. Busygin, A.I., A.A. Nevzorov, and B.Sh. Ul'masbayev (118). Mass-spectral analysis of laser-vaporized solid-state materials. IN: Tr 11, 150-158. (RZhRadiot, 8/77, 8Ye322)
374. Bykovskiy, Yu.A., A.G. Dudoladov, V.P. Kozlenkov, and P.A. Leont'yev (16). Possibility of obtaining epitaxial thick films of semiconductor compounds by means of laser radiation. ZhTF, no. 8, 1977, 1798-1799.
375. Didyk, L.A., and N.I. Ovchinnikov (0). Modeling of thermoconverter heating by a laser beam. IN: Sb 1, 136-139. (RZhF, 8/77, 8D1412)
376. Gaponov, S.V., Ye.B. Klyuyenkov, B.A. Nesterov, N.N. Salashchenko, and M.I. Kheyfets (0). Laser sputtering of films in an active medium. ZhTF P, no. 13, 1977, 632-635.
377. Gaponov, S.V., B.M. Luskin, B.A. Nesterov, and N.N. Salashchenko (297). Possibility of preparing uniform hyperfine single-crystal films by a laser operating in a millisecond pulse regime. ZhTF P, no. 16, 1977, 799-801.
378. Jiskra, J. (NS). Methods and possibilities of using CO₂ lasers in technology. Slaboproudy obzor, no. 1, 1977, 30-39. (RZhRadiot, 7/77, 7Ye399)
379. Nemchinov, I.V., and V.V. Svetstov (0). Calculating the development of a laser explosion in air, allowing for radiation. ZhPMTF, no. 4, 1977, 24-32.

380. Pazderskiy, V.A. (227). Positron annihilation in a strong electromagnetic field. IVUZ Fiz, no. 7, 1977, 142-143.
381. Peschel, C., G. Thiede, H. Orzegowski, and A. Wiemer (NS). Device for distributing the radiation energy of a gas laser. Patent GDR, no. 119915, issued 12 June 1976. (RZhRadiot, 7/77, 7Ye401)
382. Vorob'yev, P.A., V.M. Mizin, and N.V. Timokhovich (0). The role of highly excited states of molecules in the process of laser destruction of phthalocyanine dyes. Ois, v. 43, no. 2, 1977, 386-387.
383. Zon, B.A. (0). Drag effect during collisions of electrons with atoms. ZhETF, v. 73, no. 1, 1977, 128-133.

K. PLASMA GENERATION AND DIAGNOSTICS

384. Abramov, V.A., V.S. Lisitsa (23). Determining the concentration of impurities in a hot plasma according to the laser fluorescence linewidth. Fizika plazmy, no. 4, 1977, 799-804.
385. Ageyev, V.P., V.I. Konov, A.S. Silenok, and N.I. Chapliyev (1). Shock mechanism of laser heating of targets in gases. ZhTF P, no. 14, 1977, 677-680.
386. Andreyev, A.A., and V.A. Gorbunov (0). Absorption of a laser beam in a radially inhomogeneous plasma. ZhTF P, no. 16, 1977, 812-815.
387. Anisimov, S.I., M.F. Ivanov, N.A. Inogamov, P.P. Pashinin, and A.M. Prokhorov (1,73). Numerical modeling of processes of laser compression and heating of simple shell targets. Fizika plazmy, no. 4, 1977, 723-732.

388. Denus, S., J. Farny, Z. Wereszczynski, J. Wolowski, and E. Woryna (NS). Application of ion diagnostics for the study of plasma produced by a laser beam focused on $Z > 5$ targets. JTP, no. 1, 1977, 25-43.
(RZhF, 8/77, 8G337)
389. Denus, S., J. Farny, Z. Wereszczynski, J. Wolowski, and E. Woryna (NS). Using ion diagnostics to study a plasma produced by a laser focus on a $Z > 5$ target. BWAT, no. 2, 1977, 121-141. (RZhF, 8/77, 8G335)
390. Fanchenko, S.D. (0). International Conference of Experts of the International Atomic Energy Agency on Inertial Confinement of Plasma, Dubna, 19-23 July 1976. Fizika plazmy, no. 4, 1977, 932-934.
391. Farkas, Gy., and Z.Gy. Horvath (NS). Plasma production in a strong static electric field by mode-locked laser pulse trains. Kozponti fizikai kutate intezet (Publs), no. 84, 1976, 8 p. (RZhF, 8/77, 8G301)
392. Gamaliy, Ye.G., S.Yu. Sus'kov, and N.M. Sobolevskiy (1). Neutron diagnostics of a dense thermonuclear plasma. IN: Tr 12, 10-20.
393. Gamaliy, Ye.G., A.I. Gromov, A.I. Isakov, L.A. Krupinina, Yu.S. Leonov, F.I. Mateyeva, Yu.A. Merkul'yev, A.I. Nikitenko, Ye.R. Rychkova, and G.V. Sklizkov (1). Laser thermonuclear targets. IN: Tr 12, 29-60.
394. Isakov, A.I. (1). Modern development of neutron physics as related to the development of new high-power pulsed sources of neutrons. IN: Tr 12, 3-9.

395. Kaliski, S. (NS). Explosion compression of plasma up to critical values of thermonuclear microfusion. Part 1. JTP, no. 1, 1977, 3-10.
(RZhRadiot, 8/77, 8Ye380)
396. Kaliski, S. (NS). Explosion compression of plasma up to critical values of thermonuclear microfusion. Part 2. JTP, no. 1, 1977, 11-16.
(RZhRadiot, 8/77, 8Ye381)
397. Kaliski, S. (NS). Possibility of generating singular densities during concentric compression of plasma. JTP, no. 1, 1977, 17-23.
(RZhRadiot, 8/77, 8Ye331)
398. Kaliski, S. (NS). Profiled, cylindrical explosion-laser compression up to superhigh densities. JTP, no. 1, 1977, 75-80. (RZhRadiot, 8/77, 8Ye383)
399. Kaliski, S. (NS). Laser-driven D-T compression with a profiled, explosion-induced precompression. JTP, no. 1, 1977, 113-119.
(RZhRadiot, 8/77, 8Ye379)
400. Kaliski, S. (NS). Hitting high-speed targets by laser beams. JTP, no. 1, 1977, 121-127. (RZhRadiot, 8/77, 8Ye344)
401. Kaliski, S. (NS). Laser compression of a D-T mixture with an explosive profiled precompression. BWAT, no. 2, 1977, 3-10. (RZhRadiot, 8/77, 8Ye384)
402. Nastoyashchiy, A.F. (23). Ionization instability of a plasma in a laser radiation field. Fizika plazmy, no. 4, 1977, 752-757.

403. Polyanichev, A.N., V.T. Tikhonchuk, and V.S. Fetisov (1).
Hydiodynamics of a parametrically absorbing laser plasma during spherical symmetrical disintegration. Fizika plazmy, no. 4, 1977, 743-751.
404. Serdyuchenko, Yu.N., V.K. Chevokin, and M.Ya. Shchelev (1).
Electrooptic chambers for laser and laser plasma diagnostics. Fizicheskiy institut AN SSSR. Fizika plazmy. Preprint, no. 29, 1977, 35 p. (RZhF, 8/77, 8D1725)
405. Volobuyev, I.V., D.N. Gorbunov, B.V. Granatkin, and A.I. Isakov (1).
Detectors of neutrons from a short-lived plasma. IN: Tr 12, 21-28.
406. Zakharenkov, Yu.A., O.N. Krokhin, V.V. Pustovalov, V.P. Silin, G.V. Sklizkov, A.N. Starodub, V.T. Tikhonchuk, and A.S. Shikanov (1).
Interferometric study of the corona of a laser plasma under the action of a heating pulse. Fizika plazmy, no. 4, 1977, 733-742.

III. MONOGRAPHS, BOOKS, CONFERENCE PROCEEDINGS

407. Arbuzov, V.A., Ye.I. Zakharova, A.N. Papyrin, V.A. Smirnykh, R.I. Soloukhin, and A.I. Ukolov (46). Optika i atomnaya fizika (Optics and atomic physics). Novosibirsk, Nauka, 1976, 456 p.
408. Grankin, V.Ya., N.A. Tanin, M.T. Nesterenko, and V.N. Makukhin (0). Lazernoye izlucheniye (Laser radiation). Moskva, Voenizdat, 1977, 192 p.
409. Impul'snyye neytronnyye issledovaniya (Pulsed neutron studies). Fizicheskiy institut AN SSSR. Trudy, no. 94, 1977, 104 p.
410. Issledovaniye kondensatsii eksitonov v germanii metodami SVCh (Study of condensation of excitons in germanium by SHF methods). Fizicheskiy institut AN SSSR. Trudy, no. 100, 1977, 88 p.
411. Luk'yanov, D.P., and V.Ye. Privalov (0). Primeneniye kol'tsevykh gazovykh lazerov v izmeritel'noy tekhnike (Use of gas ring lasers in measuring technology). Leningradskiy dom nauchno-tekhnicheskoy propagandy. Seriya Progressivnyye metody obrabotki metallov i splavov. 1977, 23 p. (KL, 34/77, 29079)
412. Materialy i ustroystva kvantovoy radiofiziki (Materials and devices for quantum radiophysics). Fizicheskiy institut AN SSSR. Trudy, no. 98, 1977, 164 p.
413. Mayorov, S.A., and I.M. Nagibina, eds. (30). Golograficheskiye metody khraneniya i obrabotki tsifrovoy informatsii (Holographic methods for storing and processing digital information). Leningradskiy institut tochnoy mekhaniki i optiki. Trudy, no. 87, 1976, 77 p. (KL, 29/77, 24862)

414. Rasseyaniye i refraktsiya opticheskikh voln v atmosfere (Scattering and refraction of optical waves in the atmosphere). Institut optiki atmosfery SOAN, Tomsk, 1976, 183 p. (RZhF, 8/77, 8D1075)
415. Svetovoye i zvukovoye sverkhizlucheniye (Optical and acoustic superradiance). Kazanskiy gosudarstvennyy pedagogicheskiy institut. Ucheniye zapiski, no. 163, 1976, 196 p. (RZhF, 8/77, 8D1103)
416. Vagner, Ye.T., A.A. Mitrofanov, and V.N. Barkov (0). Lazernyye i opticheskiye metody kontrolya v samoletostroyenii (Laser and optical monitoring methods in aircraft manufacture). Moskva, Mashinostroyeniye, 1977, 176 p.
417. Vynuzhdennoye kombinatsionnoye rasseyaniye sveta (Stimulated Raman scattering). Fizicheskiy institut AN SSSR. Trudy, no. 99, 1977, 176 p.
418. Yaroslavskiy, L.P., and N.S. Merzlyakov (201). Metody tsifrovoy golografii (Methods of digital holography). Moskva, Nauka, 1977, 192 p.
419. Zakharov, V.M., and O.K. Kostko (0). Meteorologicheskaya lazernaya lokatsiya (Meteorological lidar). Leningrad, Gidrometeoizdat, 1977, 224 p.
420. Zemskov, G.G., and V.A. Savel'yev (0). Sredstva izmereniya lineynykh razmerov s ispol'zovaniyem opticheskikh kvantovykh generatorov (Means for measuring linear dimensions using lasers). Moskva, Mashinostroyeniya, Biblioteka priborostroitelya, 1977, 88 p.

IV. SOURCE ABBREVIATIONS

(CIRC Codens)

BWAT	(BWATA)	Biuletyn Wojskowej akademii technicznej J. Dabrowskiego
DAN B	(DBLRA)	Akademiya nauk Belorusskoy SSR. Doklady
DAN SSSR	(DANKA)	Akademiya nauk SSSR. Doklady
EOM	(EOBMA)	Elektronnaya obrabotka materialov
FAiO	(IFAOA)	Akademiya nauk SSSR. Izvestiya. Fizika atmosfery i okeana
FGiV	(FCVZA)	Fizika goreniya i vzryva
FiKhOM	(FKOMA)	Fizika i khimiya obrabotka materialov
FTP	(FTPPA)	Fizika i tekhnika poluprovodnikov
FTT	(FTVTA)	Fizika tverdogo tela
IAN Arm	(IAAFA)	Akademiya nauk Armyanskoy SSR. Izvestiya. Fizika
IAN Est	(ETFMB)	Akademiya nauk Estonskoy SSR. Izvestiya. Fizika, matematika
IAN Fiz	(IANFA)	Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya
IAN Lat	(LZFTA)	Akademiya nauk Latviyskoy SSR. Izvestiya. Seriya fizicheskikh i tekhnicheskikh nauk
IT	(IZTEA)	Izmeritel'naya tekhnika
IVUZ Fiz	(IVUFA)	Izvestiya vysshikh uchebnykh zavedeniy. Fizika
IVUZ Priboro	(IVUBA)	Izvestiya vysshikh uchebnykh zavedeniy. Priborostroyeniye
IVUZ Radioelektr (IVUZB)		Izvestiya vysshikh uchebnykh zavedeniy. Radioelektronika
IVUZ Radiofiz	(IVYRA)	Izvestiya vysshikh uchebnykh zavedeniy. Radiofizika
JTP	(JTPhD)	Journal of Technical Physics [Poland]
KE	(KVEKA)	Kvantovaya elektronika
KhVE	(KHVKA)	Khimiya vysokikh energiy
KL	(KNLTA)	Knizhnaya letopis'
KSpF	(KRSFA)	Kratkiye soobshcheniya po fizike

NM	(IVNMA)	Akademiya nauk SSSR. Izvestiya. Neorganicheskiye materialy
OiS	(OPSPA)	Optika i spektroskopiya
OMP	(OPMPA)	Optiko-mekhanicheskaya promyshlennost'
Otkr izobr	(OIPOB)	Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki
PTE	(PRTEA)	Pribory i tekhnika eksperimenta
RiE	(RAELA)	Radiotekhnika i elektronika
RZhF	(RZFZA)	Referativnyy zhurnal. Fizika
RZhGeofiz	(RZGFA)	Referativnyy zhurnal. Geofizika
RZhMekh	(RZMKA)	Referativnyy zhurnal. Mekhanika
RZhRadiot	(RZRAB)	Referativnyy zhurnal. Radiotekhnika
Sb1		Sbornik. Tekhnicheskaya elektronika i elektrodinamika, no. 1, Saratov, 1976.
Sb2		Vsesoyuznaya konferentsiya "Optika lazerov." Ist. Leningrad, 4-8 January 1977. Tezisy dokladov. Leningrad, 1976 [sic].
Sb3		Aerofizicheskiye issledovaniya, no. 6, Novosibirsk, 1976.
Sb4		Kvantovaya elektronika, no. 12, Kiev, Naukova dumka, 1977.
Sb5		Itogi nauki i tekhniki. Radiotekhnika, no. 12, Moskva, 1977.
Sb6		Kvantovaya elektronika, no. 13, Kiev, Naukova dumka, 1977.
Sb7		Vsesoyuznaya akusticheskaya konferentsiya. 9th. Moskva, 1977.
Sb8		Informatsionnyye materialy po gidrometeorologicheskim priboram i metodam nablyudeniya, no. 67, Moskva, Gidrometeoizdat, 1976.
Sb9		Informatsionnyye materialy po gidrometeorologicheskim priboram i metodam nablyudeniya, no. 68, Moskva, Gidrometeoizdat, 1976.
Sb10		Rasseyaniye i refraktsiya opticheskikh voln v atmosfere. Tomsk, 1976.
Sb11		Issledovaniya po elektrodinamike i rasprostraneniyu elektromagniticheskikh voln. Tomsk. Tomskiy universitet, 1977.

Sbl2		Khimiya plazmy, no. 4, Moskva, Atomizdat, 1977.
Sbl3		Pribory tochnoy mekhaniki, no. 1, Moskva, 1976.
TKiT	(TKTEA)	Tekhnika kino i televideniya
Tr1		AN SSSR. Fizicheskiy institut. Trudy, no. 98, 1977.
Tr2		Moskovskiy fiziko-tekhnicheskoy institut. Trudy. Seriya Obshcheniya i molekulyarnaya fizika, no. 8, 1976.
Tr3		Khar'kovskiy universitet. Vestnik, no. 151, radiofizika i elektronika, no. 6, 1977.
Tr4		AN SSSR. Fizicheskiy institut. Trudy, no. 99, 1977.
Tr5		Kazanskiy gos pedagogicheskiy institut. Uchenyye zapiski, no. 163, 1976.
Tr6		Tomskiy politekhnicheskoy institut. Izvestiya, no. 296, 1976.
Tr7		Leningradskiy korablestroitel'skiy institut. Trudy, no. 110, 1976.
Tr8		Moskovskiy energeticheskoy institut. Trudy, no. 306, 1976.
Tr9		Trudy metrologicheskikh institutov SSSR. VNII metrologii, no. 206(266), 1977.
Tr10		AN SSSR. Fizicheskiy institut. Trudy, no. 100, 1977.
Tr11		Moskovskiy fiziko-tekhnicheskoy institut. Trudy. Seriya Radiotekhnika i elektronika, 1976(1977).
Tr12		AN SSSR. Fizicheskiy institut. Trudy, no. 94, 1977.
TVT	(TVYTA)	Teplofizika vysokikh temperatur
UFN	(UFNAA)	Uspekhi fizicheskikh nauk
UFZh	(UFIZA)	Ukrainskiy fizicheskiy zhurnal
VMU	(VMUFA)	Moskovskiy universitet. Vestnik. Seriya fizika, astronomiya
ZhETF	(ZEIFA)	Zhurnal eksperimental'noy i teoreticheskoy fiziki
ZhETF P	(ZFPRA)	Pis'ma v Zhurnal eksperimental'noy i teoreticheskoy fiziki
ZhNiPFIK	(ZNPFA)	Zhurnal nauchnoy i prikladnoy fotografii i kinematografii
ZhPMTF	(ZPMFA)	Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki
ZhPS	(ZPSBA)	Zhurnal prikladnoy spektroskopii
ZhTF	(ZTEFA)	Zhurnal tekhnicheskoy fiziki
ZhTF P	(PZTFD)	Pis'ma v Zhurnal tekhnicheskoy fiziki

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KOVALEVSKIY V I	36	KUZNETSOV S P	48		LOBANOV A N	40	MEDVID' A P	51
KOVSH I B	13	KUZNETSOV V A	53		LOBANOV A N	10	MELIKSETYAN T E	24
KOZLENKOV V P	55	KUZNETSOV V V	34		LOBANOV A N	49	MELTSHCHUK M V	6
KOZLOV D N	33.47	KUZYAKOV B A	9		LOBANOV A N	32	MEL'NIKOV N A	44
KOZLOV G I	11.53				LOBANOV A N	39	MEL'NIKOVA S V	19
KOZLOV N P	16				LOBANOV A N	60	MERKUL'YEV YU A	57

MERZLYAKOV N S	61	NEMCHINOV I V	55	PANOV O L	30	POPELA B	45
METEY S M	54	NERSISYAN S TS	20	PAN' SHIN I A	51	POPOV A A	35
MIKHAYEVICH V G	25	NESIC D	30	PAPAYAN T A	24	POPOV A I	7
MIKHAYLIN V V	49	NESTERENKO M T	60	PAPYRIN A N	41, 60	POPOV N I	20
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MIKHAYLOVA G V	51	NESTEROV Z V	30	PARKHOMENKO YU N	17	POPOV V K	33
MILINKEVICH A V	19	NEVSKIY L B	45	PASHININ P P	56	POPOV YE G	54
MILOVSKIY N D	44	NEVZOROV A A	55	PASTERNAK L B	26	POPOV YU M	13, 17, 27, 28, 49
MILYAYEV V A	50, 52, 53	NIKITCHENKO V M	6	PATURYAN S V	25	POPOV YU V	29, 30
MIN' KO V I	50	NIKITENKO A I	57	PAVLOV A I	50	POPOVA L L	44
MISHIN V I	37, 38, 48	NIKITIN V V	2, 35	PAVLOV V M	17	PORNOY YE L	3
MITROFANOV A A	61	NIKOLAYCHIK A V	34	PAVLOVSKAYA N G	17	POTSEL' L M	38
MIZIN V M	19	NIKOLAYEV V D	23	PAVLYUK A A	2	POTAPOV V T	29
MIISA V M	56	NIKOLAYEV V A	50	PAZDZERSKIY V A	56	POVROZIN A I	43, 45
MKRICHYAN A R	25	NIZAMETDINOV M M	54	PCHELKIN V YU	30	POZHAR V V	6
MOGIL' NITSKIY B S	7	NOVAK I I	42	PECHERSKIY YU YA	21	POZHIDAYEV V N	32
MOKHOREVA S I	28	NOVIKOV I K	47	PEKLENKOV V D	47	PREDEIN A L	41
MOLCHANOV A G	13, 17	NOVIKOV M A	48	PELEKHATY V M	31	PRILEZHAYEV D S	5
MOLOCHEV V I	2	NOVORANTSEV I V	10	PEREVOZCHIKOV N F	11	PRISHIVALKO A P	32
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MOSTOVNIKOV V A	6, 10, 28			PETROV V I	15	PROKOPENKO V T	20, 46
MOZOL' P YE	1			PETROVA N N	15	PROKUDIN V S	5
MUCHIYEV S G	48	OBRAZTSOV G V	5	PEVGOV V G	43	PROTASOV YU S	16
MUCHNIK G F	29	OCHKIN V N	10	PIKHTIN A N	9, 10, 12	PROTSENKO YE D	7, 43
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MURINA T M	47	OLESYUK I D	11	PILINYI A	6	PUSHNYY B V	15, 16
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MURZIN V N	38	OLKOVNIKOV B F	40	PIMENOV V P	1	PYN' KO V G	36
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MYAKIN G V	4	ORDENKO E I	44	PINCHUKOV V I	34		
	33	ORLOV V K	4, 8	PISKARSKAS A	9		
		ORZEGONSKI H	40, 56	PISKARSKAS A S	43	RABINOVICH E M	40
		OSIKO V V	20	PIS' MENNY S V	22	RADCHENKO V V	25
		OSIPOV A I	37	PIS' MENNY V D	39	RAKHIMOV A T	17
NAGIBAROV V R	49	OSTAPCHENKO YE P	39	PITERKIN B D	17	RASDOBARIN G T	10
NAGIBINA I M	60	OVSCHINNIKOV N I	55	PLYASHKEVICH L N	54	RASPOPIN A M	47
NAKHODKIN N G	36	OVLKO O G	41, 54	PODGAYETSKIY V M	39	RASSOKHIN I T	15
NAKASKI W	4	OZOLS A O	29	PODPALYY YE A	17	RAYKHMAN B A	48
NAPARTOVICH A P	10		51	POGODAYEV V A	51	RAZHEV A M	13
NARZULLAYEV K N	2			POKORA L	32	RAZVIN YU V	1, 19
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NASYROV U	25			POLIVANOV YU N	36	RESHETNYAK S A	11
NAUMENOV P A	10			POLUEKTOV I A	20, 52	REYND V V	31
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ROMANOV N P	34	SEMONOV A V	46	SHVARTS N L	46	STARTSEV V R	5
RONDAREV V S	20, 46	SEMONOV G I	35	SHVEYKIN V I	29	STARUNOV V S	24
ROTARU A KH	51	SEMONOV O G	33	SIDOROV V A	2	STEBE A M	22
ROZENSHTAYN V R	37	SEMONOV V V	10	SILENOK A S	56	STEJSKAL A	44
ROZHDISTVENSKAYA N B	33, 51	SEMONYUSHKIN I N	47	SILIN V P	59	STEL' MAKH M F	28, 29
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RUDENKO O V	25	SERDYUCHENKO YU N	59	SINYAK V A	51	STEPANOV B M	40
RUDNITSKIY YU P	5	SERDYUKOV V I	21	SIRAZIYEV A I	27	STEPANOV S A	41
RUDOV YU K	30	SEREBRYAKOV V A	5	SISAKYAN YE V	21	STEPANOV S I	33
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RYKALIN N N	54	SHAKHNAZARYAN N V	25	SKREBKOV O V	13	STOYKA I M	19
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		SHALYAYEV M F	22	SKULACHENKO S S	45	STUDENIKIN YU YE	14
		SHARKOV V F	12	SLIVKA V YU	4, 52	SUCHKOV A F	8, 9
		SHARLAY S F	41	SLIVKOV I N	50	SUKHODOL'SKIY A T	20
SADOWSKI M	46	SHASHKIN V V	30	SMIL'GYAVICHYUS V	43	SUKHOV YE G	3
SAFIULINA S S	28	SHCHEGLOV V A	12	SMIRNOV A A	27	SURAN V V	47
SALASHCHENKO N N	55	SHCHEGLOV V B	11	SMIRNOV B M	12	SURKOV V I	45
SAMOKHINA M A	24	SHCHELEV M YA	59	SMIRNOV G I	42	SURSKIY O K	17
SAMOYLOV L N	40	SHCHELOKOV A N	16	SMIRNOV I V	5	SUSHKO V G	22
SAMSON A M	19	SHCHERBAKOV I A	20	SMIRNOV R V	5	SUS'KOV S YU	57
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SAPRYKIN E G	42	SHELOPUT D V	52	SMIRNOV YU G	37	SVENTITSKAYA I N	5
SARKISYAN S M	24	SHELOPUT T A	52	SMIRNOVA Z A	54	SVETISOV V V	55
SARYCHEV M YE	23	SHELOVANOVA G N	3	SMIRNYKH V A	60	SVIIZINSKIY K K	30
SATTAROV D K	28, 30	SHEPELENKO A A	9	SOBOL' A A	2	SVIRIDOV V V	36
SAUNIN S A	49	SHEPEL' L G	52	SOROLEV N N	10	SVIRKUNOV P N	50
SAVEL'YEV A D	21	SHERMET'YEV A G	18	SOROLEVSKIY N M	57	SVITASHEV K K	41, 46
SAVEL'YEV I I	45	SHERMET'YEV YU N	38	SOKOLOV A A	34		
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SAZONOV V N	26, 49	SHIKANDOV A S	59	SOLOMONOV V I	11	TANIN L V	10
SEDOV B M	5	SHILOV YU I	54	SOLOUKHIN R I	41, 60	TANIN N A	60
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SELIVANOVA L F	16	SHKVARINA N S	5	SOSKIN M S	15, 20, 27, 36	TARANENKO V F	15
SEMAK D G	36	SHMAONOV T A	33	SOSNIN V P	29	TARASOV M D	17
SEMCHISHEN V A	48	SHOKHUIZHAYEV N	4	STARINIS A YU	22	TATARSKIY V A	5
SEMENENKO A I	46	SHPAK I V	17	STAFIYEV V I	3	TATARSKIY V I	34
SEMENENKO L V	41, 46	SHPAK M T	19, 35, 39	STANENOV K V	54	TAURE L F	34
SEMENOV A A	54	SHREYTER YE YA	10	STADODUP A N	59	TEPEKHOVA S F	50
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